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Steptoe
STEPTOE & JOHNSON LLP

April 29, 2013

TO: House Energy and Commerce Committee

FROM: Chemtex Global

RE: Renewable Fuel Standard Assessment White Paper – Agricultural Sector Impacts

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These comments contain my client Chemtex Global's responses to several questions listed at the end of the House Energy and Commerce Committee's White Paper on the Renewable Fuel Standard's ("RFS") impact on the agricultural sector. Chemtex applauds the Committee for conducting this important study on the RFS and appreciates the opportunity to provide these comments.

Introduction

Chemtex is a global engineering and technology company that delivers innovative and value-added project solutions for its clients. As a subsidiary of the Gruppo Mossi & Ghisolfi ("M&G") group since 2007, Chemtex is a leader in developing renewable energy solutions that can be utilized on a mass scale *without* government subsidies.

After more than seven years of research and development activities, Chemtex has developed a technology that can produce simple sugars, for fermentation to bio-chemicals or cellulosic ethanol, from cellulosic feedstocks. Land and technology are readily available to allow the development of an alternative to fossil fuels without an impact on food related feedstocks. Biofuels produced from the fermentation of simple sugars derived from non-food related and geographically sustainable biomasses that can substitute for commercial grade fossil fuels (gasoline, diesel, etc.) are an achievable target.

At the present time, M&G and Chemtex have a facility in Crescentino, Italy that is producing cellulosic ethanol on a commercial basis. Chemtex is eager to harness this technology in the United States, and has already received a loan guarantee from the Department of Agriculture to develop a commercial scale cellulosic ethanol facility in North Carolina.

Chemtex's ability to produce advanced biofuels, including cellulosic ethanol, at prices which compete with gasoline or corn-based ethanol is heavily dependent upon the costs of the feedstocks from which these sugars are derived. Specifically, Chemtex has concluded that to produce these fuels at such prices, the sugars must be derived from feedstocks which produce a minimum of 15 tons of dry biomass per acre. Feedstocks that yield this type of volume are not only desirable from an economic perspective, but from an environmental one as well, as they substantially reduce the carbon footprint of the fuels produced.

Under current law, Chemtex cannot begin to produce cellulosic ethanol for consumption in the United States because the optimal feedstock—a perennial plant called Arundo donax—is not a feedstock for which a "pathway" has been approved under the RFS. As a practical matter, this means the cellulosic ethanol which Chemtex produces would not permit the company to generate a renewable identification number ("RIN") under the RFS, and, thus, is of limited utility to obligated parties because they cannot use such ethanol to demonstrate compliance with the RFS.

It is Chemtex's belief—attested to by the nation's experience (or lack thereof) with cellulosic ethanol since the RFS was enacted—that none of the feedstocks approved as a pathway under the RFS can be cultivated for developing cellulosic ethanol on a commercial basis. Until that situation is changed, the promise of cellulosic biofuels to provide an effective and economic alternative to fuels currently in the market will remain unfulfilled.

The Environmental Protection Agency ("EPA") issued a direct final rule on January 5, 2012 approving pathways for several feedstocks, including Arundo,[1] but withdrew the rule after it received adverse comments from several environmental groups. The comments criticizing Arundo alleged that it is an "invasive species," *i.e.*, the plant could trigger unintended consequences by out-competing native species for limited resources (such as light, nutrients, water, space to grow, etc.).

There is no doubt that Arundo is invasive if introduced into a riparian environment and not controlled or appropriately eradicated. The fact is, however, that Arundo poses minimal risk of invasiveness when it is planted in non-riparian areas and cultivated in a responsible manner. This fact is supported by the work of Dr. David Virtue in the attached Weed Risk Analysis incorporated into Exhibit A. (See Chapter 3.) Although Arundo is quite invasive in riparian areas where there are running waterways, Chemtex in unaware of any other detailed study or Weed Risk Analysis that supports a contradiction or refutation of Dr. Virtue's conclusion that there is only a "…negligible weed risk to terrestial (non-riparian) ecosystems…provided ongoing protocols are in place to prevent any spread to riparian areas. Of course, Chemtex intends—indeed, it is legally obligated—to plant Arundo responsibly in non-riparian areas, such as the chosen location in North Carolina.

To date, the Administration has refused to classify Arundo donax as renewable biomass under the RFS; the rule remains "stuck" at the Office of Management and Budget. Thus, ethanol derived from the feedstock will not generate RINs and will not be produced in the United States.

[1] 77 Federal Register 700 (January 5, 2012).

Chemtex has spent more than two years reaching out to both the Administration and environmental groups; neither appears willing to permit Arundo to qualify as a pathway even if such qualification is contingent upon it being cultivated responsibly pursuant to certain minimum standards of care. Unless the situation changes rapidly, Chemtex will have no choice but to invest its resources outside the United States. Chemtex is prepared to step away from the loan guarantee it received from the Department of Agriculture because unless it can use Arundo as the feedstock, the economics do not make sense.

Responses to Committee's Questions

Our answers to the Committee's questions that are applicable to Chemtex are below. It is worth beginning the discussion, however, with an overview of the principles that guide Chemtex's approach. First, the development of biofuels requires competitive pricing compared to petroleum products *without subsidies.* Second, it requires environmental sustainability with respect to greenhouse gases ("GHG"), *i.e.*, an overall GHG sequestration balance (including biomass feedstock farming, transportation, chemicals or biofuels production processes). Third, it requires long-term agronomic sustainability in a manner that is not competitive with food. Fourth, it must be profitable for farmers to grow biomass feedstock.

6. ***What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?***

Cellulosic ethanol can significantly reduce or even eliminate any effect the RFS may have on corn prices if it can be produced on a cost-effective basis that allows the product to be competitive with both corn ethanol and gasoline.

Under the RFS, cellulosic RINs are more versatile than corn ethanol RINs. Specifically, one's cellulosic RINs can satisfy one's corn ethanol obligations, but the opposite is not true. Thus, cellulosic ethanol—if it is produced at a price that's equal to or less than corn ethanol—could displace corn ethanol from the market if food requirements shift. Indeed, the originators of the RFS may have intended for this to be the outcome when they developed the program.

Ultimately, advanced biofuels must also be competitive with gasoline because otherwise no consumers will purchase it. The RFS contains a number of affirmative obligations, *none of which require consumers to purchase anything.* Those decisions will still be made with pocketbooks. Unless cellulosic ethanol can be produced on a cost-effective basis, it will never displace gasoline.

7. ***What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?***

The technology for making cellulosic ethanol is real, and operating on a commercial scale around the world today. Now introduction of cellulosic fuels in the United States is awaiting attractive supply chain scenarios. One of the advantages of dried biomass for producing cellulosic ethanol is that much of it can be grown on land that would not otherwise be cultivated for food, such as marginal soils, which are no longer competitive for row crops or contaminated

land. Biomass should be available or able to be grown in virtually 48 out of 50 states. Thus, if a feedstock can yield the necessary 15 tons of dry biomass per acre, and processed into an advanced biofuel, it can effectively displace gasoline, and thereby generate a positive impact on rural economies by creating additional cash crops for farmers.

The nature of the supply chain will source all biomass from the area immediately surrounding the facility. So a single facility brings in not only the workers' annual salaries, but the even greater revenue that the supply chain generates, which goes to farmers, harvesters and logistics. A single 20 million gallon / year facility, *i.e.*, $150,000,000 - $200,000,000 in initial construction cost, adds $6,000,000 in wages at the facility annually, and an additional $15,000,000 in new agricultural revenue. Chemtex's first plant will increase tax revenue in the county by $1,000,000 annually. This is a game changer for rural U.S. agricultural communities that have either seen drastic losses in a cash crop (such as tobacco), or find their lands are no longer competitive with the high yields of the U.S. corn and wheat belt.

If only those feedstocks currently approved by EPA are used to make cellulosic biofuels, however, the impact on rural economies will be (indeed has been) minimal. Those feedstocks which have been approved do not pass the litmus test of providing sufficient farm income at a cost that will produce ethanol competitive with gasoline without government subsidies. Due to lack of feedstock supply viability, cellulosic ethanol's inability to displace either gasoline or corn ethanol essentially renders the battle between fuel and food a zero sum game from the perspective of rural economies. Unless cellulosic ethanol can displace the need for corn ethanol and the need for gasoline, a tremendous growth opportunity will be surrendered for no defensible reason.

8. *Will the cellulosic biofuels provisions succeed in diversifying the RFS?*

Cellulosic producers' cost structure is based on the cost of their feedstock and the cost of their technology. As noted above, Chemtex has developed and commercially demonstrated the technology to manufacture cellulosic ethanol. The biggest impact in terms of its viability in the U.S. motor fuels market is therefore the cost of the feedstock.

The choice of feedstock is limited by presently approved pathways in the RFS. There are 3 approved pathways for targeted biomass crops. One is not viable for Chemtex's project due to incompatibility with North Carolina's climate. Even after receiving a USDA Biomass Crop Assistance Program ("BCAP") award compensating the farmer for nearly 50% of the planting cost, Chemtex STILL was unable to sign up farmers to grow switchgrass and miscanthus in a cost structure which meets both of its goals: (1) a product produced at a cost competitive with existing fuels, and (2) a substantial reduction in GHG emissions). Without higher yields per acre, the economics simply do not work for the farmer and the fuel producer.

It is Chemtex's understanding that OMB is the impediment to EPA's approving a pathway for Arundo donax under the RFS, despite the company having reached agreement between EPA, USDA and the Department of the Interior regarding how potential issues around invasiveness would be effectively addressed. If OMB allows Arundo to be approved, the cellulosic biofuels provisions will succeed in diversifying the RFS. If Arundo is not approved, the cellulosic

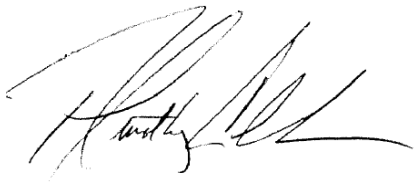
provisions will not diversify the RFS.

It is important to remember that the cellulosic obligations were designed to *phase out* the use of corn ethanol, not *complement* it. Because cellulosic RINs can be used to satisfy obligated parties' corn ethanol obligations, the RFS does not envision continued production of corn ethanol once cellulosic ethanol can be produced on a competitive basis. Therefore, if Arundo is not approved, not only will the RFS not be diversified, but one of its central objectives will not be met.

Conclusion

Chemtex appreciates this opportunity to provide input on the Committee's inquiry into the RFS's impact on the agricultural sector. I welcome the opportunity to discuss these issues with you further.

Sincerely,



R. Timothy Columbus

May 24, 2013

Comments from cLausten LLC

Submitted by email: rfs@mail.house.gov

Comments to Renewable Fuel Standard Assessment White Paper:
Greenhouse Gas Emissions and Other Environmental Impacts

In response to the Energy and Commerce Committee's third White Paper regarding Greenhouse Gas Emissions and Other Environmental Impacts, I offer the following comments limited to questions in which I have experience and insights. The Renewable Fuel Standard provides incentives to produce advanced biofuels hence providing greater energy security, creating jobs and improving the environment.

1. Is the RFS reducing greenhouse gas emissions below that of baseline petroleum-derived fuels? Is the RFS incentivizing the development of a new generation of lower greenhouse gas emitting fuels? Will the RFS produce further greenhouse gas emissions reductions when it is fully implemented?

The Environmental Protection Agency is carefully evaluating new biofuel pathways to ensure that if a biofuel technology is to be considered an "Advanced Biofuel" that the fuel meets the 50% greenhouse gas (GHG) emissions reduction or if the fuel is to be classified as "cellulosic" that the fuel meets the 60% GHG emission reduction compared to the baseline petroleum product the fuel replaces. Advanced and cellulosic fuels are being approved, albeit very slowly, and therefore the RFS2 is reducing GHG emissions below that of baseline petroleum derived fuels.

Several new pathways and biofuel companies have submitted petitions to be included in the RFS2, Appendix A is a snapshot of the EPA website listing all of the petitions waiting approval[1]. Some biofuel petitioners are no longer listed or ongoing concerns due in large part to regulatory delays in responding to the petitions. Sometimes the response time is over two years. Many of the companies listed in Appendix A submitted their petitions months if not years ago. Petition approval delays hinder further reductions in GHG emissions. The reason for the delays is unknown.

The EPA was tasked with implementing the complicated statute and therefore may be under staffed or lacking direction from the Administration in terms how much perfection is required for the GHG reduction calculations. There may be too much concern as to whether the GHG reduction assumptions are too generous and whether the agency will be sued if a fuel is classified as being Advanced or Cellulosic and an interest group does not agree with the assumptions. In short, perfection is possibly the enemy of progress.

2. Could EPA's methodology for calculating lifecycle greenhouse gas emissions be improved, including its treatment of indirect land use changes? If so, how?

[1] http://www.epa.gov/otaq/fuels/renewablefuels/compliancehelp/rfs2-lca-pathways.htm

The main issue for improving the life cycle greenhouse gas emissions calculations is to make some decisions, move forward and approve new facilities and new pathways. Improvements to the environment and economy are being lost waiting for the regulatory agency and the Office of Management and Business (OMB) to make decisions. The private sector needs regulatory decisions more quickly and cannot wait years for a decision from EPA on whether a new process reduces greenhouse gas emissions by 49% or 50%. Assumptions should be on the side of increasing the number of new technologies, not being overly concerned about a few percentage differences which can go one way or another based equally valid assumptions.

It is not clear as to why there are so many delays getting pathways approved. One reason may be due to uncertainty in the GHG emissions calculations. If that is the case, the greater good of new biofuel technologies which bring jobs, energy security and environmental benefits is being lost. The debates and concerns over the new technologies meeting a 50% or 60% GHG reduction from the baseline petroleum products replaced is confounding, especially in light of ethanol facilities that were under construction after December 19, 2007 or before December 19, 2009 being exempt from even a 20% GHG reduction.

3. Is the definition of renewable biomass adequate to protect against unintended environmental consequences? If not, how should it be modified?

Presently the definition of renewable biomass is on the side of not being broad enough and hence feedstocks that could be used to produce biofuel cannot be used and in some cases are burned in the open (such as slash from federal forestlands). Delays for feedstock approvals and confusion as to what is acceptable under existing feedstock categories impede the biofuel sector.

4. What are the non-greenhouse gas impacts of the RFS on the environment relative to a comparable volume of petroleum-derived fuels? Is there evidence of a need for air quality regulations to mitigate any adverse impacts of the RFS?

No response, see the response to question 5.

5. Has implementation of the RFS revealed any environmental challenges or benefits not fully anticipated in the statute?

There are environmental benefits that have not been fully realized due to regulatory delays not only in approved pathways but also surrounding confusion on the definition of heating oil under the RFS. The statute includes “home heating oil” but left EPA to define the term. EPA had included some pathways as approved for home heating oil, but then clarified, after approving the fuels, through a limited distribution “EnviroFlash” that unless a biofuel meets ASTM D6751 or is a perfect hydrocarbon fuel the biofuel does not qualify as “heating oil.” Proposed regulations to clarify the definition of heating oil have been pending for over a year.

Biofuels that were approved for heating applications, many of which were also approved as transportation fuel additives, could no longer be used for heating applications and if the fuel was used

for heating the RINs would have to be retired. Allowing biofuels other than just biodiesel and perfect drop in hydrocarbons to heat spaces for people could provide tremendous environmental benefits beyond reducing GHG emissions.

Emissions tests conducted to heat large facilities found that the Sulfur dioxides were reduced to a trace and particulates matter reduced by 50%[2]. Dramatically reducing particulate and sulfur dioxides provides significant local environmental benefits as well as health benefits especially to those who reside or work in the immediate area. The delay in expanding the heating oil definition denies not just small biofuel companies the opportunity to sell fuel in heating applications, but also denies the local population from having the benefit of cleaner air.

7. What are the best options for substantially further reducing greenhouse gas emissions from the transportation sector? Is the RFS an important component of such efforts?

Some suggestions as to what the EPA can do to further reduce GHG emissions include: first clarify and expand the types of biofuels that may be used in heating applications; second, sunset the ethanol exemption from reducing GHG emissions and provide incentives to the corn ethanol industry to lower the facilities GHG footprint; next, approve new pathways in 60 to 90 days; and lastly, provide a sliding scale equivalence value (EV) whereby the EV is increased or decreased if greater or lesser amounts of GHG emissions are achieved through a pathway.

One option for substantially further reducing greenhouse gas emissions is to clarify and expand the types of biofuels that may be used in heating applications. The Renewable Fuel Standard 2 allowed biofuels to be used in heating applications as well as transportation. Presently, only biodiesel and pure hydrocarbon biofuels may be used in heating applications if the biofuel is to generate RINs under the RFS2.

Producing a biofuel for on-highway vehicles and jets requires not only significant research, development and demonstration, but significant regulatory approvals. The approvals go beyond approval from EPA under the RFS2, but also include approval as a fuel or fuel additive. If a new biofuel is not substantially similar to a fuel or fuel additive that is already approved, it may be required to conduct what is referred to as Tier 3 testing. Tier 3 testing requires the fuel to be used in several (as many as 15) engines for the life of the engines to determine the impacts on the engine and the emissions system of that engine. The emissions of a biofuel also may need to be tested on animals for possible impacts on the animals and how that would translate to humans when the fuel is used in on-highway transportation vehicles. Such tests require millions of dollars and potentially years of effort to conduct from initiation to approval. The biofuel may need to acquire a new ASTM standard, which also requires years of effort and significant testing to substantiate the quality of the biofuel. Biofuels should be permitted in heating applications such that while the companies are working toward the various regulatory and ASTM requirements, the biofuel facility could be producing biofuel, generating RINs and participating in the biofuel market to reduce greenhouse gas emissions while the biofuel is used in heating applications.

[2] Avogadro Environmental Corporation: Informational Test Report; One Multi-Fuel 600 hp Cleaver Brooks Boiler Castle Oil Corporation; Bronx, NY, September 2012.

The EPA is very concerned about new biofuels being used in "non-qualified" applications, yet in the Quality Assurance Program Notice of Proposed Rulemaking, the agency argued that biodiesel and renewable diesel should be allowed to be used in any application and not have gallons that are used in non-qualifying applications be retired. Such an approach shows favoritism toward one or two constituencies putting other biofuel producers at a disadvantage. If such leniency is provided to one or two types of biofuels, it should be provided to all biofuels.

A very good option for substantially reducing GHG emissions is to allow the biofuels to ultimately be used in any application whereby a petroleum product, including chemicals, is being displaced.

Next, sunset the exemption for ethanol facilities that are not required to reduce GHG emissions to the minimum 20% GHG reduction such that they would be required to reduce to the minimum 20% GHG reduction. Further provide incentives to the corn ethanol industry at large to reduce GHG emissions by increasing the Equivalence Value (EV) of facilities that reduce GHG emissions higher than 20%. The effect is twofold. First, the ethanol facilities would have incentives to be more efficient and reduce GHG emissions and second, since the RIN value for the gallons would be increased, the number of actual ethanol gallons required in the market would decrease.

New pathways should be approved in 60 to 90 days. If the agency cannot make a decision, then facilities that have been built and are awaiting approval, which have had valid engineering reviews submitted, should be allowed to participate in the RFS market including generating RINs in the category for which the entity petitioned with no retroactive ramifications, barring of course fraudulent activities.

Greater GHG emission reductions could be encouraged by a sliding scale or weighted equivalency value (EV). The EV of a biofuel is a measure of the renewable energy content and total energy content of a biofuel relative to ethanol. The energy content of a biofuel is commonly referred to as the energy density of a fuel, the higher the energy content, especially renewable energy content, the higher the energy density of the fuel and subsequently the higher the equivalence value of a biofuel under the RFS2. The EV could be further increased if there is a greater GHG reduction or lowered if the GHG reduction is lower than the required amount for a certain category of biofuel. Using a "sliding scale" of equivalence values would allow more fuels to participate in the RFS and provide a market incentive to further reduce GHG emissions, including existing corn ethanol facilities.

Such a calculation could be:

$$EV_{fnl}=EV * (GHG_{wtd})$$

Where: EV_{fnl} is the final EquivalencE Value based on the weighted GHG reduction.

And GHG_{wtd} is the weighted GHG reduction where

$$GHG_{wtd\ Adv} = (1.0 + (GHG_{reduction} - 0.50))$$

Where $GHG_{wtd\ Adv}$ is the greenhouse gas weighted value for the Advanced biofuel in question.

If the GHG reduction of an advanced fuel is greater than 50%, the biofuel would receive an increased Equivalence Value resulting in a higher RIN value per gallon.

$$GHG_{wtd\ Cell} = (1.0 + (GHG_{reduction} - 0.60))$$

Where $GHG_{wtd\ Cell}$ is the greenhouse gas weighted value for the Cellulosic biofuel in question.

If the GHG reduction of a cellulosic fuel is greater than 60%, the fuel would receive an increased EV value resulting in a higher RIN value per gallon. The calculation below represents the GHG weighted value calculation for an ethanol facility assuming that the GHG reduction requirement is 20% from the baseline petroleum product.

$$GHG_{wtd\ Eth} = (1.0 + (GHG_{reduction} - 0.20))$$

As an example, if a fuel was considered an Advanced Biofuel, was produced from a feedstock of biogenic fats, oils wastes and greases and was found to have a GHG reduction equivalent of 80% compared to the petroleum baseline, and assume that the EV was 1.5, the weighted Equivalence Value would be as follows:

$$GHG_{wtd\ Adv} = (1.0 + (0.80 - 0.50) = 1.3$$

$$\text{The } EV_{fin} = 1.5 * 1.3 = 1.95$$

If the Advanced fuel was found to reduce GHG emissions by 45% instead of 50%, then the EV_{fnl} would be reduced as follows:

$$GHG_{wtd\ Adv} = (1 + (0.45 - 0.50)) = 0.95$$

$$\text{The } EV_{fin} = 1.5 * 0.95 = 1.43$$

Rather than rejecting fuels with a lower GHG footprint, fuels can enter into the RFS2 program. It should be noted that the established GHG reductions of 50% for Advanced biofuels and 60% for Cellulosic biofuels was a political negotiation with little to no science as to what could be achievable. A new technology industry which the government has stated that it would like to promote is in fact under more scrutiny and restrictions than just about any other industry. The implementation of the RFS2 needs to encourage the biofuel industry as oppose to crush it with over burdensome regulations.

As new biofuel technologies are developed, often with existing feedstocks, the development focus has been on achieving a “drop in” biofuel, not ensuring that the GHG reductions meet a 50% GHG reduction threshold. In the same manner, new feedstocks are being developed and often in existing biofuel conversion systems. The new feedstock indirect land use calculations tend to be unknown and

therefore there are delays or incorrect assumptions and hence the GHG reduction may or may not meet the 50% or 60% bright line requirement. These bright line requirements may be an impediment to the nascent biofuel industry.

Thank you for this opportunity to provide feedback to the Committee and we appreciate the thoughtful nature with which the Energy and Commerce Committee is proceeding to review the Renewable Fuel Standard Program.

Sincerely,

Connie Lausten
Principal, cLausten LLC

Appendix A.

Pending Pathway Assessments

The following pathway requests have been received and are under review:

Company	Fuel	Feedstock	Process
Marquis Energy–Wisconsin, LCC	Ethanol	Corn Starch	*New (Proprietary)*
11 Good Energy, Inc.	*New (G2 Diesel)*	Soy bean oil, Oil from annual cover crops, Algal oil, Biogenic waste oils, fats, greases, and Canola oil	Esterification
Arvens Technology, Inc.	Biodiesel	*New (pennycress)*	Transesterification
BP Biofuels North America, LLC	Cellulosic biofuel	*New (energy cane)*	Any
	Cellulosic biofuel	*New (napiergrass)*	Any
Chemtex Group	Cellulosic biofuel	*New (arundo donax)*	Any
Conestoga Energy Partners, LLC, and Bonanza Bioenergy, LLC	Ethanol	*New (grain sorghum)*	*New (proprietary)*
Diamond Green Diesel, LLC	*New (renewable naphtha)*	Biogenic waste oils, fats, greases	Hydrotreating
DriveGreen, LLC	*New (renewable electricity)*	Landfill biogas	*New (proprietary)*
EdeniQ, Inc.	Ethanol	Corn kernel fiber	Any
E Energy Adams, LLC	Ethanol	Corn	*New (proprietary)*
Element Markets, LLC	CNG	Biogas from anaerobic digesters	Any
Emerald Biofuels LLC, Global Clean Energy Holdings, and UOP	Renewable diesel, jet fuel, and		Hydrotreating

LLC	naphtha	*New (Jatropha)*	
Emerald Biofuels LLC and Global Clean Energy Holdings	Biodiesel		Transesterification
Gevo	Isobutanol	Corn	*New (proprietary)*
Golden Renewable Energy, LLC	Renewable diesel	*New (municipal sewage sludge),* Biogenic waste oils, fats, greases	*New (proprietary)*
Green Vision Group	Ethanol	*New (energy beets)*	Fermentation
Growing Power Hairy Hill	Ethanol	*New (wheat starch)*	*New (proprietary)*
ICM	Ethanol	Corn	*New (proprietary)*
Iogen	Ethanol	*New (grain sorghum)*	*New (proprietary)*
Kior, Inc.	*New (renewable gasoline blendstock)*	Cellulosic biomass	*New (proprietary)*
Montana Advanced Biofuels, LLC	Ethanol	*New (barley, wheat starch residue)*	Fermentation
National Cottonseed Products Association	Biodiesel, renewable diesel	*New (cottonseed oil)*	Transesterification
National Sorghum Producers	Ethanol	*New (biomass sorghum)*	Any
National Cottonseed Products Association Biodiesel, renewable diesel New (cottonseed oil) Transesterification **Osage Bio Energy, LLC**	Ethanol	*New (barley)*	Fermentation
Permeate Refining, LLC	Ethanol	Non-cellulosic separated food waste	Any

POP Diesel, Inc.	*New (un-transesterified plant oil)*	*New (jatropha oil)*	*New (proprietary)*
Rothsay Biodiesel	*New (biodiesel)*	Biogenic waste oils, fats, greases	Transesterification
Solazyme	Biodiesel, renewable diesel, jet fuel	Carbohydrate, Algae	Transesterification Hydrotreating
Sundrop Fuels, Inc.	*New (renewable gasoline)*	Cellulosic biomass	*New (proprietary)*
Terrabon, Inc.	*New (renewable gasoline)*	Cellulosic biomass	*New (proprietary)*
WM GTL, Inc.	Cellulosic Diesel	*New (landfill biogas)*	Any

Please note: Only official petitions submitted in accordance with the requirements of Section 80.1416 of the RFS 2 regulations are included on this list, which will be updated on a regular basis, but is only current as of the date at the bottom of this page.

Once an official determination is made for a pathway request, it will be removed from this list and posted in the Completed Pathway Assessments section below.

In addition to the above pathway requests, we are also conducting pathway analyses of new feedstocks including palm oil, camelina, grain sorghum, sweet sorghum, and pulp wood.

Completed Pathway Assessments

The following pathway requests have been completed:

Company	*Date Completed*	*Determination*
Dakota Spirit AgEnergy, LLC	February 6, 2013	Approved (PDF) (19 pp, 3.8MB, February 2013)
Absolute Energy, LLC	February 6, 2013	Approved (PDF) (15 pp, 2.8MB, February 2013)
Western Plains	January 11, 2013	Approved (PDF) (16 pp, 5.0MB, January 2013)

Sabine Biofuels II, LLC	September 26, 2012	Approved (PDF) (11 pp, 430K, September 2012)
High Plains Bioenergy, LLC	February 17, 2012	Approved (PDF) (14 pp, 4.16MB, February 2012)
Viesel Fuel, LLC	September 29, 2011	Approved (PDF) (2 pp, 473K, September 2011)
Changing World Technologies, Inc.	June 10, 2011	Approved (PDF) (13 pp, 408K, June 2011)
Endicott Biofuels, LLC	April 6, 2011	Approved (PDF) (18 pp, 5.1MB, April 2011)
Global Energy Resources	April 6, 2011	Approved (PDF) (16 pp, 4.0MB, April 2011)
Triton Energy, LLC	December 10, 2010	Approved (PDF) (17 pp, 5.0MB, December 2010)

April 22, 2013

Honorable Fred Upton
Chairman
Honorable Henry Waxman
Ranking Member
House Committee on Energy and Commerce
RFS@Mail.House.Gov

Dear Sirs,

Again, thank you for organizing this important and timely review of the Renewable Fuel Standard (RFS). This letter comments on two questions posed in your April 18, 2013 White Paper on Agricultural Sector Impacts.

Sincerely,

Marlo Lewis, Senior Fellow

As enumerated in the White Paper, those questions are:

3. Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?

4. Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?

Comment on Question 3

The EPA should have granted the 2012 waiver request. As many stakeholders said at the time, "If not now, when?"

Since the RFS was adopted, corn use for ethanol tripled from 1.6 billion bushels in 2005/2006 to 5.0 billion in 2011/2012.[1] Ethanol's share of the U.S. corn crop increased from less than 15% in 2005 to nearly 40% in 2012.[2]

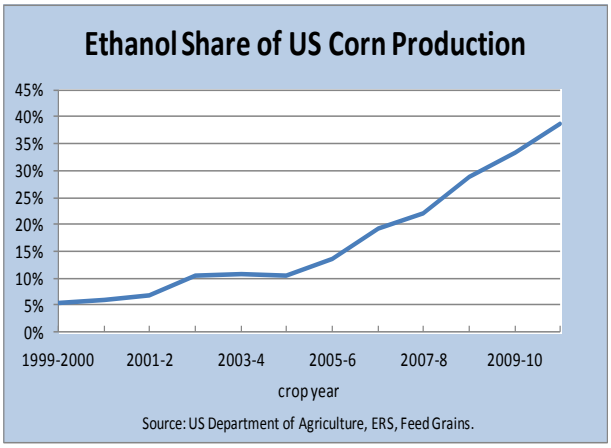


Figure Source: Wise, *Cost to Mexico of U.S. Corn Ethanol Expansion*

Not coincidentally, as the White Paper notes, corn prices, which averaged $2.15 per bushel in 1997-2006, have averaged $7.00 per bushel in 2013 and shot above $8.00 per bushel during the 2012 drought. [3]

The surge in corn prices in 2012, triggered by the worst drought in 50 years, created significant hardship for poultry, beef, pork, and dairy producers, who use corn as animal feed. The RFS was a contributing (aggravating) factor. By pre-allocating an ever-growing share of the nation's corn crop to ethanol manufacture, the RFS intensifies and prolongs price spikes when drought or other adverse conditions reduce supply.

Waiving the RFS could have helped calm corn futures markets and, in some measure, alleviate widespread economic distress in the petitioning states – especially if the waiver created an expectation that the EPA would grant additional waivers in subsequent years.

Unfortunately, the EPA adopted a reading of the waiver provision that placed an almost impossible burden of proof on petitioners, prejudging the issue against them, as will be discussed below.

Livestock Producers and State Economies Experienced Severe Harm

In 2012, the governors of ten states petitioned the EPA to waive the RFS in whole or in part.[4] The petitions paint a picture of state economies in distress due to the impact of high grain prices on livestock producers. Consider two examples.

"Virtually all of Arkansas is suffering from severe, extreme, or exceptional drought conditions," reported Gov. Mike Beebe, and accelerating corn prices are "having a severe economic impact" on the State's livestock producers. Agriculture accounts for "nearly one-quarter" of Arkansas's economic activity, and livestock sectors hit hard by rising corn prices "represent nearly half" of the State's farm sales.

"While the drought may have triggered the price spike in corn," Beebe acknowledged, an "underlying cause" is the RFS, which mandates "ever increasing amounts of corn for fuel." Since the RFS was enacted in 2005, "the cost of corn for use in food production has increased 193 percent," corn stocks are tighter, and prices are more volatile.

In Georgia, wrote Gov. Nathan Deal, agriculture accounts for 15.7% of State output, has an annual impact of $68.9 billion, and provides 380,000 jobs. Poultry and livestock "represent over 50 percent of Georgia's farm gate value, while broilers alone account for over 40 percent of farm gate value." An estimated 98,000 jobs depend directly or indirectly on the State's poultry industry. Because of rising corn prices, Deal estimated, Georgia's poultry producers spend an extra $1.4 million a day. Even during the three years previous to the drought, "over one-third of the U.S. broiler industry experienced bankruptcy, sale, or closure" due in part to rising feed costs.

Like Beebe and the other governors, Deal drew two reasonable conclusions. (1) The RFS – a politically-mandated diversion of increasing quantities of corn from feed to fuel – puts "upward pressure" on corn prices. (2) Waiving the RFS would relieve some of that pressure by freeing up grain stocks for uses other than ethanol manufacture.

Parsing out the exact contribution of the RFS to rising feed prices is difficult. Use of carry-over Renewable Fuel Identification Numbers (RINs) to meet blenders' renewable volume obligations (RVOs) for 2012 or 2013 could potentially reduce the quantity of corn converted to ethanol in those years by more than 900 million bushels.[5] But, noted the National Chicken Council in its comment on the waiver petitions, the estimated 2.6 billion gallons of accumulated RINs equal 19% of the 2013 ethanol blending requirement, and "conventional wisdom holds that refiners and blenders are likely to hold onto their RINs to offset the 'blend wall' that is fast approaching, the point at which ethanol will completely saturate the E10 blend market and gasoline producers will be unable to incorporate the increasingly higher levels of ethanol into their fuels."[6] The recent surge in RIN prices from $0.02 in the first quarter of 2012 to $0.70 in the first quarter of 2013 would appear to corroborate that analysis.

In 2009, the Congressional Budget Office estimated that ethanol accounted for a 28% to 47% increase in the price of corn from April 2007 to April 2008.[7] As food industry petitioners noted, that price increase occurred when the U.S. harvested a record 13.1 billion bushels of corn.[8] The USDA estimates that U.S. corn production in 2012 was 10.8 billion bushels.[9] Yet, although corn production in 2012 was 2.3 billion bushels less than in 2008, the RFS required corn -ethanol production to expand from 8.52 billion gallons in 2008 to 13.40 billion gallons in 2012 – a 57% increase.[10] The foregoing facts indicate that the RFS made a non-trivial contribution to rising corn prices and the associated hardship experienced by livestock producers in 2012.

The EPA Misread the Waiver Provision

Section 211(o)(7) of the Clean Air Act (CAA) authorizes the EPA to waive all or part of the RFS blending targets for one year if the Administrator determines, after public notice and opportunity for comment, "that implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States."[11] Only once before did a governor request an RFS waiver. When corn prices soared in 2008, Gov. Rick Perry of Texas requested that the EPA waive 50% of the mandate for the production of corn ethanol.[12] Perry, writing in April 2008, noted that corn prices were up 138% globally since 2005. He estimated that rising corn prices had imposed a net loss on the State's economy of $1.17 billion in 2007 and potentially could impose a net loss of $3.59 billion in 2008. At particular risk were the family ranches that made up two-thirds of State's 149,000 cattle producers. Bush EPA Administrator Stephen Johnson rejected Perry's petition in August 2008.[13]

In the EPA's Request for Comment on the 2012 waiver petitions,[14] the agency indicated it would use the same "analytical approach" and "legal interpretation" on the basis of which Johnson denied Perry's

request in 2008. Specifically, according to the EPA, petitioners must show that the "RFS itself" would cause severe economic harm, not merely "contribute" to it. The EPA also implied petitioners must show that the relief sought would "remedy the harm" – achieve a substantial reduction in the prices of corn, feed, and food.

This reading of the statute prejudges the issue, imposing a burden of proof that may be impossible to meet under almost any realistic scenario. Major changes in economic conditions typically result from a combination of factors, not a single cause. An ethanol mandate that causes little economic harm when unemployment rates are low, corn production is booming, corn stocks are high, and China's demand for U.S. corn imports is low could inflict severe harm when the opposite conditions obtain — as they do today.[15]

If Congress wanted the EPA to grant a waiver only when the RFS *alone* causes severe economic harm, it could have easily said so. The statute specifies no such limitation. Rather, CAA Section 211(o)(7) says the Administrator may grant a waiver if she determines that "implementation" of the RFS would cause severe harm. *Implementation* always occurs *within a context of market conditions*. Whether or not implementation causes harm depends decisively on other factors. It is not possible to make a reasonable determination without considering other factors that also affect food and feed prices. Nothing in the statutory language requires the EPA to don analytical blinkers and ignore, for example, the worst drought in 50 years, its effects on corn stocks, and the price effects of the interaction of the RFS with the drought-induced supply shock.

The EPA's suggestion that the waiver be a remedy for the harm also stacks the decks against petitioners. By law, the EPA may grant a waiver for only *one year* at a time. Although a series of waivers might significantly reduce corn and feed prices, a one-year waiver may have little impact on markets shaped by RFS's 15-year (2008-2022) production quota schedule and the associated expectation of a quick return to even higher mandated levels of corn-ethanol production in the following year. So even if waivers granted two or three years in succession would provide a complete remedy, the EPA's dubious reading of the statute would allow the agency to deny waiver petitions year after year on the grounds that no individual waiver would provide the relief petitioners seek.

Inconsistent Decision Criteria

The EPA argues in the opposite vein when the issue is not whether to grant regulatory relief but whether to pull a regulatory trigger. In such cases, even small contributions to an alleged harm are considered sufficient grounds for regulation, and even minute regulatory contributions to the hoped-for solution are deemed fully justified.

Take, for example, the EPA's heavy-duty truck greenhouse gas (GHG) emission standards. The EPA estimates that the standards for model year (MY) 2014-2018 heavy-duty vehicles will reduce atmospheric carbon dioxide (CO_2) concentrations by 0.732 parts per million, which in turn will avert an estimated 0.002-0.004°C of global warming and 0.012-0.048 centimeters of sea-level rise by the year 2100.[16] Such changes would be too small for scientists to distinguish from the "noise" of inter-annual climate variability. The EPA acknowledges no obligation to demonstrate either that heavy-truck GHG emissions *alone* harm public health and welfare or that regulating MY 2014-2018 heavy-truck GHG emissions would take significant bites out of global temperatures and sea-level rise.

The EPA's proposed GHG emission standards for fossil-fueled power plants are an even clearer example of the agency's pro-regulation bias. The EPA does "not anticipate any notable CO_2 emissions changes resulting from" the GHG emission standards and, thus, concludes that "there are no direct monetized climate benefits in terms of CO_2 emission reductions associated with this rulemaking."[17] In short, the standards would not even make a negligible contribution to a solution, yet the EPA proposed them anyway.

In contrast, when the issue before the EPA is whether to suspend part or all of the RFS blending requirements, then the regulation *itself* must be shown to cause severe harm, and even temporary relief must be shown to cure all ills (or most of them). To be sure, the agency claims these decision criteria are established by statute. But, as noted, the text of CAA section 211(o)(7) does not stipulate either that the "RFS itself" apart from other relevant conditions must be the cause of severe harm, or that the waiver be a silver bullet.

Lessons Learned

Two lessons emerge from the foregoing discussion:

1. The EPA's reading CAA Section 111(o)(7) virtually guarantees that petitions will be denied regardless of the RFS's contribution to economic harm. At a minimum, Congress should revise the text to preclude the EPA's deck-stacking interpretation and clarify that the threshold issue is whether, in the context of actual market conditions, the RFS makes a non-negligible contribution to severe economic harm.

2. The current waiver process, in which the agency administering the RFS also gets to decide whether to grant relief from RFS blending requirements, embodies a basic conflict of interest. The EPA, after all, is not an impartial umpire in controversies arising under the rules it administers but the primary stakeholder – the main interested party. The current waiver provision inadvertently flouts a core principle of constitutional government: No one should be judge in his own cause. Congress should transfer the authority to grant or deny waiver petitions to an independent body with no organizational interest in upholding or suspending RFS requirements. In this reformed process, the EPA's role would be limited to submitting comments like any other stakeholder.

<u>Comment on Question 4</u>

The Clean Air Act does provide the EPA with sufficient flexibility to adequately address RFS effects on *domestic* corn prices. However, as discussed above, the EPA's interpretation of the statute precludes the exercise of such flexibility. Consequently, Congress should revise the text to make the Act's flexibility explicit and transfer the authority to review waiver petitions to an independent body that is not biased against suspending RFS requirements.

The Clean Air Act does not, however, provide *any* flexibility to adequately address RFS effects on grain prices in *developing countries*. For example, even if the EPA were to conclude that RFS implementation contributes to rising global commodity prices that force 100 million people back into absolute poverty,[18] the agency would not have statutory authority to provide relief.

This is no small matter. A full 15% of the global corn crop now goes into U.S. ethanol production.[19] It thus seems likely that the RFS has made a non-negligible contribution to the tripling of international maize prices since 2006 and the associated adverse impacts on world hunger.

Figure source: Wise, *Cost to Mexico of U.S. Corn Ethanol Expansion*

The Clean Air Act authorizes the EPA to suspend RFS requirements when implementation would cause severe harm to the economy or environment of a "State, a region, or the United States." This focus is too narrow. The RFS has the potential to harm the world's poorest people by making staple commodities less affordable. Congress should correct this oversight. Section 211(o)(7) should be revised to include adverse impacts on world hunger among the harms for which petitioners may seek relief.

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[1] Thomas D. Elam, *The RFS, Food and Fuel Prices, and the Need for Statutory Flexibility*, FarmEcon LLC, Aug. 16, 2012, p. 18, http://www.globalwarming.org/wp-content/uploads/2012/07/RFS-issues-FARMECON-LLC-7-16-12.pdf.

[2] U.S.D.A. data cited by Timothy A. Wise, *The Cost to Mexico of U.S. Corn Ethanol Expansion*, Global Development and Environment Institute Working Paper No. 12-01, May 2012, p. 3, http://ase.tufts.edu/gdae/Pubs/wp/12-01WiseBiofuels.pdf

[3] *Reuters*, "Commodities -- Corn hits record high; Brent oil up fifth day," Aug. 9, 2012, http://www.reuters.com/article/2012/08/09/markets-commodities-idUSL2E8J9HH020120809.

[4] A partial list: Gov. Mike Beebe, Maryland (Aug. 13, 2012, http://www.epa.gov/oms/fuels/renewablefuels/documents/arkansas-rfs-waiver-request.pdf); Gov. Jack Markell, Delaware, and Gov. Martin O'Malley, Maryland (Aug. 9, 2012, http://www.nationalchickencouncil.org/wp-content/uploads/2012/08/Letter-to-EPA-Administrator-RFS-DE-MD-8.9.12-final.pdf); Gov. Nathan Deal, Georgia (Aug. 20, 2012, http://www.nationalchickencouncil.org/wp-content/uploads/2012/08/Letter-to-Lisa-P-Jackson-Petition-for-Waiver.pdf); Gov. Susana Martinez, New Mexico (Aug. 20, 2012, http://www.meatami.com/ht/a/GetDocumentAction/i/80562); Gov. Beverly Eaves Perdue, North Carolina (Aug. 14, 2012, http://www.epa.gov/oms/fuels/renewablefuels/documents/north-carolina-rfs-waiver-request.pdf); Gov. Rick Perry, Texas (Aug. 24, 2012, http://governor.state.tx.us/files/press-office/O-JacksonLisa201208240000.pdf).

[5] University of Illinois researchers estimate the stock of RINs currently available at 2.6 billion gallons. That is equivalent to about 942 million bushels of corn. My calculation is based on Wallace E. Tyner, Farzad Taheripour, Chris Hurt, *Potential Impacts of a Partial Waiver on the Ethanol Blending Rules*, Purdue University/Farm Foundation, NFP, August 2012, http://www.farmfoundation.org/webcontent/Potential-Impacts-of-Waiving-Ethanol-Blending-Rules-1841.aspx.

[6] National Chicken Council, Oct. 11, 2012, http://www.nationalchickencouncil.org/wp-content/uploads/2012/10/NCC-Comments-on-Docket-No.-EPA-HQ-OAR-2012-0632-RFS-Waiver-Oct.-11-2012.pdf.
[7] Congressional Budget Office, *The Impact of Ethanol Use on Food Prices and Greenhouse-Gas Emissions, April 2009*, p. 7, http://www.cbo.gov/sites/default/files/cbofiles/ftpdocs/100xx/doc10057/04-08-ethanol.pdf.
[8] National Pork Producers et al., Petition for Waiver or Partial Waiver of Applicable Volume of Renewable Fuel, July 30, 2012, p. 8, http://www.nppc.org/wp-content/uploads/20120730-mf-Final-RFS-Waiver-Petition.pdf
[9] USDA, *Crop Production 2012 Summary*, January 2013, p. 3, http://usda01.library.cornell.edu/usda/current/CropProdSu/CropProdSu-01-11-2013.pdf
[10] National Pork Producers et al., p. 6.
[11] 42 USC § 7545, http://www.law.cornell.edu/uscode/text/42/7545.
[12] Gov. Rick Perry, Letter to EPA Administrator Stephen Johnson, April 25, 2008, http://www.epa.gov/oms/renewablefuels/rfs-texas-letter.pdf.
[13] *EPA Decision on Texas Request for Waiver of Portion of Renewable Fuel Standard* (RFS), EPA420F-08-029, August 2008, http://www.epa.gov/oms/renewablefuels/420f08029.htm
[14] EPA, Request for Comment on Letters Seeking a Waiver of the Renewable Fuel Standard, 77 FR 52716, August 30, 2012, http://www.gpo.gov/fdsys/pkg/FR-2012-08-30/pdf/C1-2012-21066.pdf
[15] "Record Corn Imports by China to Drive Rally, Rabobank Says," B*loombergBusinessweek*, Sep. 07, 2012, http://www.businessweek.com/news/2012-09-07/china-rising-corn-import-demand-to-sustain-rally-rabobank-says.
[16] Environmental Protection Agency and Department of Transportation, *Greenhouse Gas Emission Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles*, Proposed Rule, 75 FR 74289, Nov. 30, 2010.
[17] Environmental Protection Agency, *Standards of Performance for Greenhouse Gas Emissions for New Stationary Sources: Electric Utility Generating Units*, Proposed rule, 77 FR 22340, April 13, 2012.
[18] In 2008, World Bank President Robert Zoellick warned that soaring grain prices could increase by 100 million the number of people living in absolute poverty (then defined as a household income of $1 a day or less). "Food and the Poor: The new face of Hunger," *The Economist*, April 17, 2008, http://www.economist.com/node/11049284?story_id=11049284
[19] Wise, *The Cost to Mexico of U.S. Corn Ethanol Expansion*, p. 1.

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The Committee on Energy and Commerce
Renewable Fuels Standard White Paper
Agricultural Sector Impacts

CountryMark is Indiana's only American-owned oil refining and marketing company and is recognized as a leader in the distribution of biodiesel and ethanol. The CountryMark refinery uses 100% American crude oil sourced from the Illinois Basin located in Illinois, southwest Indiana, and western Kentucky. Our refinery processes 28,000 barrels of crude per day which represents only 0.15% of the entire domestic refining industry. Even though CountryMark is small from a refining industry perspective, we have a large impact on the State of Indiana. CountryMark supplies over 75% of the agricultural market fuels and 50% of school district fuels in the state.

CountryMark is owned and controlled by its member cooperatives that are in turn owned and controlled by individual farmers within our trade territory. Over 100,000 farmers in Indiana, Michigan, and Ohio participate in these local cooperatives who own CountryMark. CountryMark's Board of Directors is comprised of farmers. Each year, profits are distributed back to these farmers via the cooperative system. These distributions remain in rural communities where the dollars support local economies.

CountryMark appreciates the opportunity to comment on the Renewable Fuels Standard (RFS) Assessment White Paper and provide valuable information as the Committee on Energy and Commerce deliberates changes to the RFS. The most recent white paper requested comments on impacts to the agricultural sector including cellulosic biofuels.

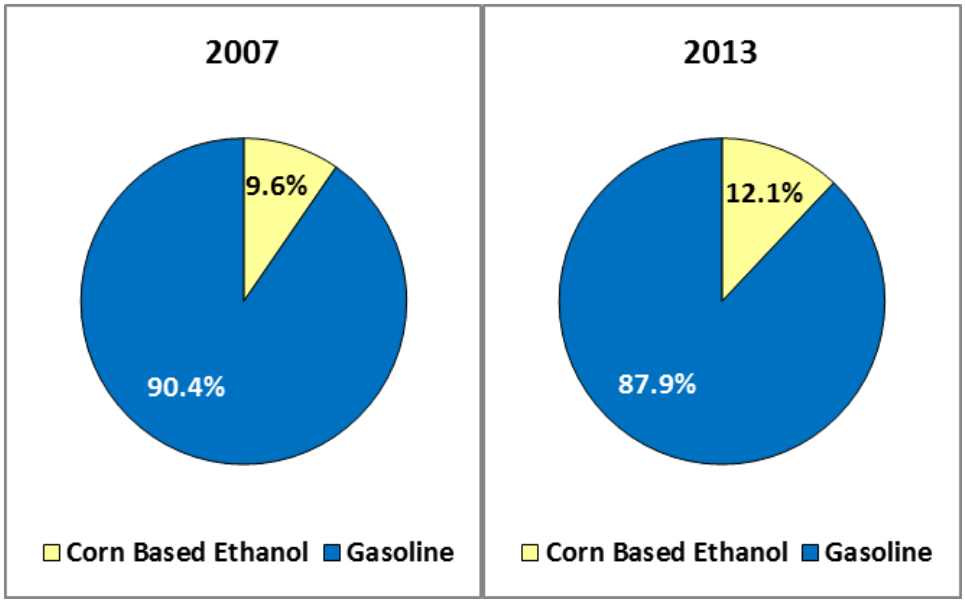
According to EPA's own data, nearly zero commercially available cellulosic biofuels currently exist (only 1,000 gallons, total, were available domestically in the last three years). However, the RFS requires refiners to blend 16 billion gallons of cellulosic biofuels – made from feed stocks such as switch grass, woodchips, and plant waste – by 2022. Based on performance to date, it will be many years before cellulosic biofuels are commercially available for use. While EPA has partially responded to the lack of cellulosic fuels by partially waiving the cellulosic requirements of the RFS, it has not waived the full amount. CountryMark like all obligated parties under the RFS have the impossible task of using a biofuel that does not exist. To meet our obligation, CountryMark must purchase waiver credits which are essentially a tax from the EPA. This produces a negative effect on our farmer owners because operating costs increase resulting in less profit available for distribution.

The outlook for gasoline and diesel demand has significantly decreased between 2007 and 2013. The majority of gasoline supplied in the United States is blended with 10 percent ethanol. Gasoline demand has decreased to the point where even the mandated amount of corn-based ethanol cannot be absorbed in the existing gasoline pool. Figure 1 provides a comparison of what the gasoline mix would look like based on Energy Information Agency (EIA) gasoline demand projections for 2007 and 2013. Only the mandated corn-based ethanol is included in the mix.

Based on 2007 gasoline demand projections, all corn-based ethanol would have been absorbed into the gasoline pool without exceeding the 10 percent blend wall. Based on 2013 gasoline demand projections, mandated corn-based ethanol would make up 12.1% of the gasoline pool in the year 2022. When originally contemplated, fuel demand was at a trajectory that provided for growth opportunities for petroleum based and renewable transportation fuels. Demand projections have significantly decreased so now the RFS is picking winners and

losers not only in the fuel industry but in the communities in which we operate. Being a farmer owned small business refiner, CountryMark is in the unique position of having to balance between both sides.

Figure 1: Gasoline Pool Comparison



CountryMark started blending ethanol at ten percent long before being obligated under the RFS because it made economic sense. CountryMark also started blending biodiesel in 2005 because our customers wanted to purchase the product. This supported the renewable fuels industry which provides our owners with an alternative use for their products. Renewable fuels were growing without government mandates. With the government mandates, commodity prices have increased due to the increased amounts of corn and soybeans being used to produce fuels. This may be considered a benefit for the agricultural industry.

However, the combination of increasing mandates for renewable fuels in an environment of reduced demand for transportation fuels will have adverse effects on CountryMark. The higher cost of compliance to the RFS increases our operating costs which reduces potential profits that can be distributed to our farmer owners. As mandates increase, CountryMark must blend more renewable fuels or purchase Renewable Identification Number (RIN) credits which in turn erodes the market for our produced gasoline and diesel fuel. Eroding markets will eventually require rationalization in the refining industry. Small business refiners like CountryMark are the most vulnerable segment of the refining industry primarily because we produce fewer barrels of product to spread our operating costs. Compliance costs could get to the point that CountryMark could no longer be competitive and the investment of our farmer owners could be lost.

Many think that cellulosic biofuels will benefit rural communities in similar ways to corn based ethanol or biodiesel production. However, at this time, the type of cellulosic biofuel that can be produced at commercial volumes or be used in the existing fuel system and compete with petroleum based products, is unknown. There is so much uncertainty about if and when the production of cellulosic fuels will be commercially viable that it is premature to assume their production will benefit rural communities. However, CountryMark's benefit to rural communities is certain.

We purchase over $800 million of crude oil per year from the Illinois Basin. These purchases provide income to the 40,000 royalty owners in the Illinois Basin. Our products are sold and distributed through our branded dealer network providing solid employment throughout the rural communities of Indiana. CountryMark's operations employ nearly 500 workers, mostly in the rural economy of southwest Indiana and southeast Illinois. In Posey County, Indiana alone over $30 million in wages and benefits are provided every year. These wages are over twice the local average and are paid mostly to hourly workers with little or no local opportunity for other employment equivalent to CountryMark. In addition to the positive financial impact of CountryMark's crude purchases and payroll, the company places over $200 million into the local economy for the purchase of other goods and services. With everything combined, CountryMark's total economic contribution exceeds $2.5 billion per year. This value stays here in the United States and provides much needed jobs in mostly rural communities.

The RFS mandate for non-existent cellulosic fuels will threaten the economic viability of CountryMark and its vital economic lifeblood for rural communities like Posey County Indiana. The RFS is picking winners and losers in the fuel industry and by doing so is also choosing those communities and citizens that will benefit because in a world of declining fuel demand the RFS favors the uncertain future of cellulosic fuel production at the expense of the known economic benefits provided by CountryMark. The RFS should be revised to eliminate the cellulosic mandates until that industry has known tangible benefits that will not replace or eliminate the known benefits of small business refiners like CountryMark.

For additional information or discussion, don't hesitate to contact Matt Smorch at 317-238-8228 or matt.smorch@countrymark.com.

April 29, 2013

The Honorable Fred Upton
Chairman
House Energy and Commerce Committee
2125 Rayburn House Office Building
Washington, DC 20515

The Honorable Henry Waxman (D-CA)
Ranking Member
House Energy and Commerce Committee
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Upton and Ranking Member Waxman:

On behalf of Darden Restaurants, Inc., I am writing to thank you for soliciting input from interested stakeholders with regard to the Renewable Fuels Standard (RFS). This letter outlines Darden's position on the RFS and discusses its impact on our business.

Darden Restaurants, Inc. owns and operates some of America's favorite restaurants, including Red Lobster, Olive Garden, LongHorn Steakhouse, The Capital Grille, Bahama Breeze, Eddie V's, Yard House and Seasons 52. We employ more than 200,000 individuals in over 2,000 locations, with a presence in over 1,000 North American communities spanning all 50 states.

We are deeply concerned about the negative impact of the RFS on food prices. According to U.S. Department of Agriculture projections, ethanol production is on pace to consume more than 40% of the annual corn yield in the United States in 2013. Combined with other factors like rising global demand and high fuel prices, the RFS and other ethanol incentives have caused commodity and food prices to increase significantly over the last several years. While there are many factors that impact the cost of food products, a conservative estimate shows that Darden's food costs have been driven higher by at least 7% annually as a result of the RFS. Separately, a study of the RFS conducted last fall by PWC showed that the RFS mandate will increase food costs for chain restaurants by between $500 million and $3.2 billion. Rising food costs are a major challenge for the restaurant industry—an industry where profit margins are already slim and the struggling economy continue to impact business.

Darden supports repeal of the RFS. In the absence of full repeal, we support efforts to scale it back and utilize the temporary waiver when corn prices increase significantly. As you know, Congress authorized the Environmental Protection Agency (EPA) to temporarily waive RFS requirements if the administrator determines that implementation of the mandate would severely harm the domestic economy or if there is inadequate domestic supply of the prescribed fuels. We believe last year represented just such a situation, when the RFS combined with severe drought to drive up the price of corn. At that time, we wrote to the EPA Administrator in support of a request by the governors of Arkansas and North Carolina for a waiver from the RFS for corn-based ethanol. Unfortunately, EPA did not grant the waiver.

Darden supports the development and production of efficient and renewable energy sources that can provide sustainable, long-term solutions. In fact, our headquarters in Orlando, FL was recently equipped with solar panels that supply nearly 20% of the facility's energy needs. Additionally, we support the development of the domestic natural gas supply, as well as fuel derived from other renewable sources such as switch grass, sugar beets, sugar cane, and landfill waste. We believe cellulosic ethanol would be a preferable alternative to corn based ethanol, but at present it is not commercially viable on a large scale, and the vast majority of the ethanol produced in the United States comes from corn. That is not likely to change for the foreseeable future.

It is clear that the mandated production of ever-increasing amounts of biofuels derived from food and feedstuffs has increased food costs worldwide. We have seen a direct impact on our business and in our industry. We are hopeful that the RFS can be scaled back or repealed in the 113th Congress, and stand ready to work with the Energy and Commerce Committee to that end.

Thank you again for soliciting our input. If we can provide additional insight or be of further assistance, please don't hesitate to contact me at ckunde@darden.com or T.J. Birkel at tjbirkel@darden.com.

Sincerely,

Chip Kunde
Vice President, Government Relations

To: The Committee on Energy and Commerce

Re: Questions for Stakeholder Comment of the RFS

Fr: David Swenson, Associate Scientist, Department of Economics, Iowa State University

Dt: 23 April 2013

Re Question: #2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

This question gets at the heart of much of the massive subsidy afforded the ethanol industry over the past decade along with other protections and promotions the industry enjoyed. From the very beginning, ethanol production was touted as a rural development strategy – the adding of value through a manufacturing process.

I have studied the state of Iowa extensively, and I have written several reports in the job creation potential of ethanol production as well as cellulosic ethanol. For the state of Iowa, I found myself countering "outrageous" claims of job creation and ostensible GDP performance, most notably from reports commissioned by the Iowa Renewable Fuels Association as well as those conducted by the national RFA and even some state government agencies. These reports boldly claimed upwards of 50,000 or more job impacts in Iowa's ethanol industries, but at the time my own evaluations produced net gains to the state's economy of less than a tenth of that amount.

I am attaching the text of a recent short report of mine to this comment that estimates the value of ethanol production for 2011. It is important for reviewers of the RFS to understand that the job creation capacity of all biofuels is relatively small, easily discerned, and clearly finite, given current technologies and all other energy production factors. That report says Iowa's ethanol industry now supports just under 6,000 total jobs. There are still organizations that claim that value is 10 times greater. I assure you they are wrong.

There is a second attachment following the first. It is a separate estimate of the size of the ethanol industry in Iowa and the U.S. for 2010. It will demonstrate that the national job impacts are probably less than 40,000, which again is roughly a 10^{th} of the value touted by promoters, to include the current agriculture secretary.

My regards,

Associate Scientist, Economics

Attachment #1. Estimating the Importance of the Ethanol Industry to the Iowa Economy in 2011

Dave Swenson, Associate Scientist, Department of Economics, ISU

January 2012

Introduction

At ISU we produce estimates of the total value of certain industries to the state's economy using modeling systems that contain up-to-date secondary data on the major components of industrial production in the state. We, for example, periodically describe the importance of agriculture and ag-related manufacturing to jobs and incomes in Iowa for the College of Agriculture and Life Sciences as it promotes its education and outreach services to its many and diverse stakeholders. Similar studies have been done for manufacturing clusters, like the Cedar Rapids area food and kindred products manufacturing sector, or whole industries, like the state's vaunted insurance sector.

This report summarizes the ethanol industry's value to the state of Iowa using the same methods ISU employs with other industries it periodically evaluates as well as the same methods it has deployed in previous studies of Iowa's ethanol sector.1

The Industry's Direct Values

Iowa's ethanol industry has 43 establishments and 1,650 persons employed at those plants according to payroll employment data compiled by the Bureau of Labor Statistics (BLS). Those data are for 2010, but there were no plants added in 2011, so the employment number is steady. Average total earnings at those facilities are an estimated $56,000 per year per worker after adjusting BLS values for likely employer-paid benefits, so total worker earnings at Iowa's ethanol refineries are $92.4 million. Total value added in the industry, which would include all payments to labor, all payments to investors, and

[1] See for example, Swenson, Dave in Determining the Regional Economic Values of Ethanol Production in Iowa Considering Different Levels of Local Investment, Bioeconomy Working Group, College of Agriculture, Iowa State University, September 2006, and _____ in Understanding Biofuels Economic Impact Claims, Department of Economics Staff Report, Iowa State University, April, 2007. For an earlier survey and critique of the practice of impact analysis of biofuels see also _____, Input-Outrageous: The Economic Impacts of Modern Biofuels Production. Paper presented at the biennial IMPLAN Users Conference, Indianapolis, Indiana, June, 2006.

Iowa State University research on the economic impacts of ethanol plants was extensively investigated and replicated by Low, Sarah A., and Andrew M. Isserman in Ethanol and the Local Economy: Industry Trends, Location Factors, Economic Impacts and Risks, Economic Development Quarterly 23 (Feb. 2009): 71-87. Finally, this topic was broadly addressed in Swenson, David, A Review of the Economic Rewards and Risks of Ethanol Production, Chapter 3 in David Pimentel (ed), Biofuels, Solar and Wind as Renewable Energy Systems. Springer Science+Business Media B.V. 2008.

all indirect taxes on production activity would be approximately 750 million.[2] Value added is the same as Gross Domestic Product (GDP), so it is a useful measure of the potential worth of the industry to Iowa's overall economy and allows for a standardized comparison to other industries.

The Industry's Total Iowa Impacts

When we measure the contribution of an industry to the state's economy, especially one that boomed as the ethanol industry did over the past five years, we are careful to segregate net new productivity from productivity that already existed in the Iowa economy. That means we carefully scrutinize the schedule of inputs the industry requires. We discount the corn inputs from the modeling structure because the corn was already here,[3] and because what we are interested in documenting are the net additions to Iowa productivity associated with ethanol production. The ethanol industry does not create more farm production jobs, but the modeling structure does not know that unless an analyst switches off that relationship. The industry has, however, very strong input requirements for skilled maintenance and facilities management, chemicals, fuels, utilities, and transportation. Once the modeling structure has been re-calibrated to emphasize those value inputs, the results for Iowa yield these outcomes:

Estimated Economic Impacts of Iowa's Ethanol Industry in 2011

- Total Iowa Jobs 5,995
- Total Value Added (or GDP) $1.06 billion
- Total Labor Income (a subset of GDP) $280.14 million

[2] This estimate assumes that $.20 in net profit will have been generated on 3.2 billion gallons of ethanol production in 2011, which includes profits on co-product, plus all labor income of $92.4 million, plus estimated taxes on production of $11.25 million equals $748.5 million in value added. The Iowa Ag Marketing Resource Center shows a monthly average net return per gallon of $.153 for the past year. Rounding to $.20 per gallon to include co-products is therefore a conservative, but reasonable, assumption on plant profits.

[3] Iowa's ethanol producers buy upwards of 1.15 billion bushels of Iowa corn, but the corn was already here, so they do not incite more land based agricultural activity, per se; instead, they opportunistically co-locate in order to maximize their access to the states plentiful corn supply. While plants may up the bid locally for corn, in and of themselves they do not create more crop production in Iowa. If there are price and profit conclusions to be drawn from higher corn prices, those prices and profits have also been influenced by federal policies, blenders' credits that have helped provide a floor for those prices, and production mandates. While the subsidies expired at the end of 2011, the imputed Iowa production value of those subsidies was perhaps as high as $1.2 billion in 2011. Readers will note, therefore, that the imputed blender credit subsidies exceed the estimated total GDP or value added impact estimate produced in this report.

On the other side of the economic impact ledger, a thorough analysis of the consequences of robust corn prices on all other Iowa users of corn would note that feeders of pork, beef, and poultry have had to absorb those robust prices. Rolling overall farm-level profits into a conclusion about the impact of the ethanol industry on Iowa's economy is, therefore, a dicey process fraught with offsets, adjustments, caveats, and significant debate among agricultural economists.

Given these results, the ethanol industry in adding value to Iowa corn produced the following net additions to the state's economy per 100 million bushels of corn processed in 2011:

- Total Iowa Jobs 525
- Total Value Added (or GDP) $92.8 million
- Total Labor Income (a subset of GDP) $24.5 million

Conclusion

Iowa's ethanol industry has emerged as an important component of the state's economy. Given current federal laws and the evolution of the industry, the industry is not expected to grow through mid-decade. There are two cellulosic ethanol plants scheduled to begin production in 2013; however, as there has yet to be a successful commercial-scale advanced ethanol production facility in the U.S., one must cautiously monitor the industry's potential growth and the value of that growth to the state of Iowa. If that industry does take off, it will involve a completely different analysis than the one just completed as cellulosic ethanol will require a substantial amount of net-new economic activity up the feedstock supply chain. If the industry is able to grow, it will have a very robust impact in the immediate feedstock supplying area.[4]

Nonetheless, the corn ethanol industry, as it exists now, accounts for nearly 6,000 Iowa jobs, $1.06 billion in GDP and $280.14 million in incomes to all workers whose jobs directly or indirectly depend on this industry. Had this industry not grown at the time it did, Iowa's total employment would have been lower, and its rate of unemployment would surely have been higher.

[4] The potential economic impacts of cellulosic ethanol production have been systematically estimated for the state of New York considering the use of woody biomass, corn stover, and grasses as feedstock sources. See Swenson, Dave, Appendix I: Biofuel Industry Industrial Impacts and Analysis, in Renewable Fuels Roadmap and Sustainable Biomass Feedstock Supply For New York, Final Report 10-05. New York State Energy Research and Development Authority (NYSERDA). When production characteristics for Iowa cellulosic production become established, the NYSERDA methodologies will be applied to the Iowa experience to properly project job, income, and GDP impacts for the state and its subregions.

Attachment #2: An Estimate of Ethanol Jobs in Iowa and the U.S.

Dave Swenson
Department of Economics, Iowa State University
January, 2011

This short report is based on-going research at Iowa State University regarding the likely job value of ethanol plant operations in the U.S. The estimates are based on standard input-output modeling procedures where a highly itemized "bill of goods" approach was employed to gauge the value of within-Iowa and national inter-industrial linkages that would be expected given the commodity, technical, and service requirements of modern ethanol refineries.

Net new job creation associated with the boom in corn-based ethanol production in the U.S., especially since 2005, has frequently been exaggerated. The magnitude of the exaggerations has been noted by this author (Swenson, 2006, 2007, 2008) and further evaluated by Low and Isserman (2009). The appropriate manner for projecting job impacts associated with ethanol production is to determine all labor and associated value added that accumulates from ethanol plant activities – activities that occur after the corn has arrived at the ethanol facility. Early evaluations of ethanol plant impacts allowed the plants to be credited with causing corn production, i.e., they counted corn production jobs along with their associated production impacts as net new productivity even though that productivity already existed. In addition, others were prone to count short term construction jobs associated with the boom in ethanol plants as if they were ongoing. The upshot, for example, were industry-sponsored claims of ethanol-related jobs in Iowa that were in excess of 10 times the likely value (Urbanchuck, 2007).

Table 1 presents estimated average ethanol job values the U.S. and for Iowa separately for 2010 given 13.03 billion gallons per year of declared production capacity. In all, the nation's 187 operational ethanol plants required 8,525 workers at the plants. The total number of ethanol-related jobs nationally was 38,618. An explanation of the table's elements and the logic of the estimation are detailed below.

Table 1

Corn Ethyl Alcohol Statistics for 2010	Nation	Iowa	Iowa as a percentage of or as a ratio to the U.S.
1. Operational plants	187	40	21%
2. Capacity in billion gallons yearly (BGY)	13.028	3.280	25%
3. Average plant size in million gallons yearly (MGY)	69.7	82.0	118%
4. Total jobs at the ethanol plants	8,525	1,595	19%
5. Weighted average jobs per plant	46	40	87%
6. Jobs multiplier	4.53	3.70	82%
Job Impacts			
Jobs at the plants	8,525	1,595	19%
All indirect and induced jobs	30,093	4,307	14%
Total jobs	**38,618**	**5,902**	15%

1. The plant numbers and capacity data come from either the U.S. Renewable Fuels Association (RFA) web site or from the Iowa Renewable Fuels Association web site. These numbers were up to date as of the end of July, 2010, and represent the scope of productivity in the U.S. for 2010.
2. Plant capacities are those that were stated in RFA tables. Production can in fact exceed stated capacity, and it is widely assumed the U.S. has the ability to produce 13.5 billion gallons of ethanol per year with either no more or only minor capital needs.
3. Economies of scale are a key component to ethanol plant profitability. Iowa plants average 82 MGY compared to a national average slightly below 70 MGY. The economies of scale are very important for understanding the diminishing returns to job creation. There are similar scale-related savings throughout the ethanol production process, but they are very noticeable in plant labor.
4. The total jobs estimates at the plants were based on the distribution of plants by size in the U.S. and separately in Iowa and then attributing the expected labor to those plants. Ethanol plants are large, declining cost operations; for example, a 50 MGY operation requires 35 jobs, but a 100 to 110 MGY operation gets by with from 42 to 45 jobs. U.S. County Business Patterns reported 7,932 ethanol jobs in 2008, and as capacity additions stalled sharply in the 2008 to 2009 period, it is reasonable to assume there were roughly 8,500 ethanol producing jobs in the nation in 2010. In addition, 2009 QCEW data from the BLS reported 1,553 ethanol producing jobs for 2009. As no new capacity was added to the state in 2010, the listed Iowa value appears reasonable.
5. The average jobs per plant is simply line 4 divided by line 1. These numbers assume greater labor efficiencies in Iowa per plant as Iowa has a disproportionate share of the nation's newest plants.
6. The multipliers resulted from two separate "bill of goods" impact analyses of the ethanol industry: one using a U.S. model, and one using an Iowa-specific model. Both estimates were done using Minnesota Implan industrial multipliers. Similar results would have eventuated using RIMS II multipliers from the U.S. BEA for the nation and for Iowa. The resulting U.S. job multiplier is higher than the Iowa multiplier as the U.S. economy is more completely formed vis a vis all production and consumer needs, therefore the likelihood of leakage is reduced. The reader is reminded that these multipliers refer to all economic activity involved in adding value to corn from the time that it arrives at the plant. All other existing "upstream" economic activity, i.e., corn production, was already in the economy and is not recounted.

   The jobs multipliers are higher than many other manufacturing firms for two reasons. First, and most important, ethanol refineries are capital intensive operations and require relatively little labor. Stated differently, a modern 100 MGY ethanol refinery produces in excess of 2.2 million gallons of ethanol for each worker, which would fetch $5.25 million at the wholesale level at mid-January, 2011, prices.

   The plants, however, require an extensive array of service and technical inputs. Initially, although corn had always been centrally hauled and redistributed, ethanol refineries create greater demands for trucking, which is offset by fewer rail tons were that corn exported by rail. The industry requires, also, high levels of skilled pipe-fitting, mechanical, and electrical maintenance. Modern plants purchase grain origination services, and they must also buy accounting, financial, and legal services.

Significant adjustments in the labor coefficients required for the delivery of electricity, water, and natural gas were made to the modeling systems to reflect the marginal labor required to deliver high volumes of these commodities versus the average amount of labor that would have been found in the respective industrial coefficients.

As the ethanol industry has matured, it is very likely that the average job requirements of the major (non-corn) inputs into the firms have diminished. For example, one would not assume that the skilled electrical, pipe-fitting, or mechanical servicing needs would be double in a 100 MGY operation as compared to a 50 MGY operation. Over time one assumes that technical services suppliers of the nation's ethanol plants in turn have become more efficient. Accordingly, it is this author's conclusion that both the Iowa and the national job multipliers are generous and would be expected to be declining as the industry has matured.

Total Jobs: Using the multiplier values derived from the bill of goods analysis, on an annualized basis, the table concludes that the 2010 U.S. ethanol industry required 8,525 jobs to produce the equivalent of $13.03 billion gallons of ethanol a year (the current operational capacity). Considering all input requirements and concomitant household spending related jobs plus those jobs at the plant, the industry supports 38,618 jobs either directly or indirectly. Iowa's 40 plants require 1,595 workers to produce 3.28 billion gallons per year. Once all inputs requirements are considered plus all household spending by the workers, that multiplies through to 5,902 jobs – about .3 percent of all employment in the state.

In all, nationally, 2,963 direct, indirect, and induced jobs are supported per billion gallons of ethanol produced annually.

End Notes:

Low, Sarah A. and Andrew M. Isserman, Ethanol and the Local Economy: Industry Trends, Location Factors, Economic Impacts, and Risks. Economic Development Quarterly, February 2009 23: 71-88.

Swenson, David. Input Outrageous: The Economic Impacts of Modern Biofuels Production. Department of Economics Staff Paper, Iowa State University, July 2006. Found at: http://www.econ.iastate.edu/sites/default/files/publications/papers/paper_12644.pdf

Swenson, David. Understanding Biofuels Economic Impact Claims. Department of Economics Staff Paper, Iowa State University, April 2007. Found at: http://www2.econ.iastate.edu/research/webpapers/paper_12790.pdf

Swenson, David. A Review of the Economic Risks and Rewards of Ethanol Production, in Pimentel (ed.) Biofuels, Solar and Wind as Renewable Energy Systems, Springer, 2008.

Urbanchuck, John. Contribution of the Biofuels Industry to the Economy of Iowa. Iowa Renewable Fuels Association Report, February 2007. Found at: http://www.iowarfa.org/PDF/2006%20Iowa%20Biofuels%20Economic%20Impact.pdf

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4/29/2013

To: House Energy and Commerce Committee

I am an agricultural economist in the Department of Agricultural and Consumer Economics at the University of Illinois. I am also affiliated with the Energy Biosciences Institute at the University of Illinois and have been engaged in research examining the economic, environmental and distributional impacts of the RFS. We have been analyzing the impact of the first generation and second generation biofuels mandated by RFS on land use, food and fuel prices, greenhouse gas emissions and agricultural producers and consumers. Below is a response to some of the questions and the list of publications that explain our findings in greater detail. I am attaching a few of my publications.

What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

We have examined the economic viability and potential availability of several feedstocks for cellulosic biofuels, including energy crops like miscanthus, switchgrass, energy cane, and crop residues such as corn stover and wheat straw. Our research indicates that high yielding energy crops like those listed above have the potential to be produced on less productive cropland and produce high yields of biofuels per acre of land. To the extent that technological development in commercial production of cellulosic biofuels lowers their costs of production over time due to learning-by-doing and R&D, these biofuels have the potential to compete with corn ethanol and reduce its share below 15 B gallons per year in the next two decades. Cellulosic biofuels would then lower crop prices below levels prevailing with corn ethanol only. Even if they do not reduce the share of corn ethanol, we find that 90% of the feedstocks for cellulosic biofuels are likely to come from degraded/pasture-fallow or as by-products of food crop production and hence their production would not significantly raise crop prices. We find that about 5 M hectares of cropland pasture in rainfed US would be sufficient for energy crop production, together with crop and forest residues to meet the cellulosic biofuel requirements of the RFS. There is sufficient marginal/fallow cropland available to meet the needs for cellulosic biofuels for the RFS over the next two to three decades.

What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?

Cellulosic feedstock production is likely to increase income for biomass producers as they produce a high value product, particularly those using low quality lands for energy crop production. It will also promote rural development by creating jobs on the farm, in ancilliary industries to support a cellulosic biofuel supply chain and in biorefineries. We find that the economic benefits of the RFS for the US economy could be significant because it will improve the terms of international trade for the US by lowering the price of fuel imports and raising the value of agricultural exports.

Apart from these economic benefits, cellulosic biofuel production can have positive environmental effects. Data from field experiments shows that the production of energy crops will increase soil fertility by increasing soil organic matter and reduce nitrogen run-off and leaching and improve water quality. In fact we find that the cellulosic biofuel mandate could offset a large portion of the negative impact of producing 15 B gallons of corn ethanol on water quality by reducing soil erosion and nitrogen runoff and thereby contribute to reducing hypoxia in the Gulf.

8. Will the cellulosic biofuels provisions succeed in diversifying the RFS?

Cellulosic biofuel mandate if implemented stringently would provide the incentives to diversify the mix of feedstocks used and the types of biofuels produced to meet the RFS. We find that a diverse mix of agricultural feedstocks is likely to be viable with corn stover in the Midwest, wheat straw in the north and west and miscanthus and switchgrass in the south and south central regions in the US. Energy cane would be economically viable in the Louisiana coast.

Please feel free to contact me by email at khanna1@illinois.edu and let me know if I can provide additional information.

References

Chen, X., H. Huang, M. Khanna and H. Onal, Meeting the Mandate for Biofuels: Implications for Land Use, Food and Fuel Prices, Chapter 7 in *The Intended and Unintended Effects of U.S. Agricultural and Biotechnology Policies*, eds. J. G. Zivin and J. Perloff, University of Chicago Press, 2012.

Khanna, M., X. Chen, H. Huang and H.Onal, 2011, "Supply of Cellulosic Biofuel Feedstocks and Regional Production Patterns" *American Journal of Agricultural Economics,* 93(2): 473-480.

Khanna, M and X. Chen, "Economic, Energy Security and Greenhouse Gas Effects of Biofuels: Implications for Policy," *American Journal of Agricultural Economics* (forthcoming).

Chen, X., M. Khanna, and S.Yeh, "Stimulating Learning-By-Doing in Advanced Biofuels: Effectiveness of Alternative Policies," *Environmental Research Letters*, doi:10.10888/1748-9326/7/4/045907, December 13, 2012.

Huang, H. M. Khanna, M, H. Onal and X.Chen, "Stacking Low Carbon Policies on the Renewable Fuels Standard: Economic and Greenhouse Gas Implications," *Energy Policy* Available online 20 July 2012, ISSN 0301-4215, 10.1016/j.enpol.2012.06.002.

Khanna, M., and D. Zilberman, "Modeling the Land-Use and Greenhouse Gas Implications of Biofuels," *Climate Change Economics*, 3(3), 2012, 1250016..

Sincerely,

Madhu Khanna
Professor

Committee and staff:

Below are my responses to those questions for which my research has relevance. I can provide further information if desired.

1. What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected? The *increase* in US ethanol production since 2000 has used about 38% of the *increase* in world coarse grain production since then. It seems reasonable to assume that it is therefore responsible for 38% of the 200% increase in coarse grain prices since then, i.e., U.S. ethanol expansion has increased corn prices by about 75%. Econometric estimates by others provide answers similar to this fundamental logic. But some of that expansion would have occurred without RFS, because the dramatic increase in petroleum price during that time has made corn ethanol more competitive. The impact of the RFS on corn prices must therefore have been less than 75%, but I don't yet have an answer as to how much less. Other crop price increases have been slightly below that of corn.
2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?
3. Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?
4. Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?
5. What has been the impact, if any, of the RFS on food prices? Negligible in the US, where the total farm value of grains represents only about 3% of the total expenditures on food. A pass-through of a 75% increase in grain prices would result in an increase in food expenditures by about 2.25%. In other countries the cost of grain is a much more significant component of food expenditures and incomes, so impacts are higher, though grain prices did not increase as much in many of these countries.
6. What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices? Over the next 5 years, the most economical feedstock for cellulosic biofuel will be corn stover. That will increase the value of the corn crop relative to other crops, which will result in additional increases in corn acres, possibly reducing the price of corn grain relative to what it would have been without the cellulosic component of the RFS.
7. What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?
8. Will the cellulosic biofuels provisions succeed in diversifying the RFS?
9. What is the scale of the impact of the RFS on international agricultural production and global land use changes?

Richard K. Perrin
Jim Roberts College Professor
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Department of Agricultural Economics

University of Nebraska, Lincoln

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April 29, 2013

VIA ELECTRONIC MAIL
rfs@mail.house.gov

The Honorable Fred Upton
Chairman
Energy and Commerce Committee
U.S. House of Representatives
2322A Rayburn House Office Building
Washington, DC 20515

The Honorable Henry A. Waxman
Ranking Member
Energy and Commerce Committee
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Upton and Ranking Member Waxman:

On behalf of the DuPont Company, I am pleased to offer the following responses to stakeholder questions that accompanied the House Energy and Commerce Committee's white paper on Agricultural Sector Impacts released on April 18, 2013. The white paper and stakeholder questions raise key issues and DuPont is well positioned to provide constructive feedback. I look forward to working with you and the entire Committee in providing additional responses to the RFS-related white papers planned for later this year.

DuPont is an industry leader in providing advantaged products for agricultural energy crops, feedstock processing, animal nutrition, and biofuels. Our three-part approach to biofuels includes: (1) improving existing ethanol production through differentiated agriculture seed products, crop protection chemicals, as well as enzymes and other processing aids; (2) developing and supplying new technologies to allow conversion of cellulose to ethanol; and (3) developing and supplying next generation biofuels with improved performance, such as biobutanol.

DuPont also brings the perspective of a company deeply involved in the agricultural industry. Our seed business DuPont Pioneer sells corn and other seeds to farmers growing for a variety of end use markets, including grain ethanol production. Our intimate relationship with our farmer customers and our extensive research provides us significant insight into grain markets, the role of corn and soybeans as renewable fuels feedstocks and the agronomics of the harvest and management of corn stover as a cellulosic feedstock. We also provide a variety of products for the grain ethanol business as well, including enzymes and disinfectants, and so have an intimate knowledge of the operation of these sugar fermentation operations.

DuPont has been a global leader in greenhouse gas emission reduction for many years, having begun systematic reduction of emissions from our operations almost two decades ago. Between 1990 and 2004 DuPont reduced our global greenhouse gas emissions by more than 70%. By 2015 we will further reduce our greenhouse gas emissions at least 15% from a revised base year of 2004 that reflects portfolio changes. We believe biofuels have a critical role to play in the development of alternatives for the transportation fuels sector, in ways that are renewable, cost-effective, and commercially viable in multiple geographies with minimal environmental footprints.

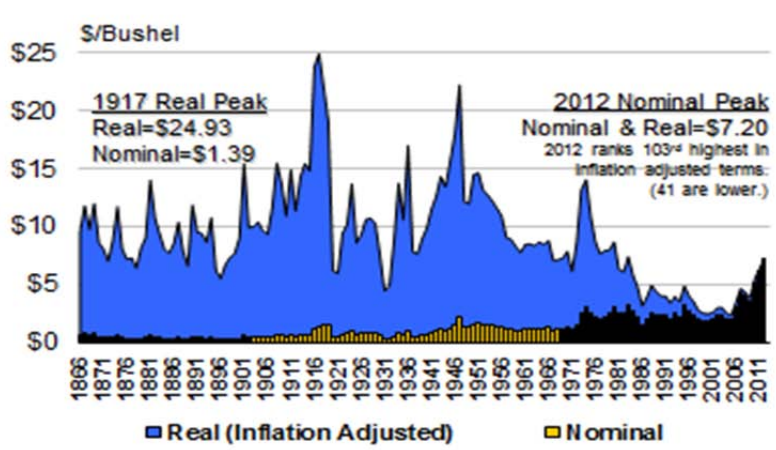
Questions for Stakeholder Comment

1. What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected?

Response:
The effect of the RFS on corn prices has been relatively minor with other factors playing more prominent roles on prices. These grains are part of complex global commodity markets. Grain commodity prices are affected by multiple factors, with energy costs being perhaps the most significant, along with global supply-demand dynamics. Corn demand has increased as the developing world pursues more protein rich diets resulting in more animal feed demand, and biofuels use of grain has increased at the same time. Global corn production has risen to reflect the added demand. Last year's drought in the U.S. temporarily put additional pressure on markets with a lower than anticipated supply, an inherent aspect of agricultural commodity markets. Biofuels consume a small proportion of global grain production (e.g., <10% of corn). USDA's estimates have generally placed the effects of biofuels on corn prices as low, 15% or less.

The figure below shows historical corn prices in 2012 dollars and adjusted for inflation. Even though corn prices have seen an overall increase in the last five years, these increases are modest when compared with prices over the course of the last century. USDA projects corn prices below $5.00 by this summer, largely erasing the effects of last year's drought.

U.S. Corn Price – 1866-2012
(Nominal & Inflation Adjusted to 2012$)



Prices were higher in 2012, after the drought hit. However not high in real terms.

Source Data: USDA
Analysis: DuPont Pioneer Global Economics Group, (April 2013)

2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

Response:
As global commodity markets have responded to growing grain demand for multiple end uses, the agriculture sector has responded by increasing output. While it is difficult to ascribe increased output to specific demand drivers, it is reasonable to anticipate that global grain production increases reflect all increases in demand, including for renewable fuels.

Agricultural yield (average production per acre), particularly in corn and soybeans, has risen continually for decades, with the pace of growth increasing in recent years as more sophisticated seed technologies are deployed. Average global corn yield in 2005 was about 65 bushels per acre and grew steadily to about 80 bushels per acre in 2010. Over that same time, harvested acres grew from 360 million to 400 million worldwide. Corn production grew from 26 billion bushels to 32 billion bushels. In the U.S., the improvements in yield have been even more dramatic. In 1940, the average U.S. corn yield was about 40 bushels an acre. By 2009, it exceeded 165 bushels per acre. Better technology has improved yields in good growing years and it has reduced the yield loss during poor growing seasons, such that the effects of the recent U.S. drought were much milder than would have been the case in previous decades. This expansion in agriculture production and the direct effects of the RFS (e.g. investments in renewable fuels production and the associated Dried Distillers Grains with Solubles (DDGS) production) have produced significant economic benefits in rural America.

Equipment, materials and technology suppliers to agriculture have benefited from increased sales. Farmers have seen growing incomes, with ripple effects into state and local economies.

Biofuels production has brought substantial investment and employment into rural America. The next wave of that investment, in advanced biofuels, is occurring today with multiple plants starting up or in construction, including DuPont's $200MM cellulosic ethanol plant in Nevada, IA.

3. Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?

Response:
EPA evaluated the waiver request against the criteria laid forth in the statute, using economic analysis from USDA. Given the multiple factors that affect both corn price and the livestock market, and the relatively small role of the RFS in rising grain and other commodity prices, we believe that EPA's determination was appropriate.

We recognize that for many stakeholders EPA's assessment was not "the right answer", but we believe it was analytically sound and reflected the statutory direction. While some voices are calling for changes to the RFS, citing EPA's failure to approve the waiver request, the agency was following the analytical process required by the statute and made a transparent finding. We should not substitute an emotional response to the outcome of a detailed analysis for the analytical determination provided for by the statute.

We also note that for much of the livestock industry insurance has helped to address the business consequences of higher grain prices (whatever their source). Congress should not attempt to rely solely on the RFS to manage fuel-agriculture interactions but should recognize that there are also other policy tools available.

4. Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?

Response:
Yes, the RFS provides EPA substantial flexibility to manage the program and we believe the Agency has recognized and applied that flexibility in a reasonable way. As Congress wrote the RFS 2 there was a recognition that some of its targets were ambitious and technology incenting, particularly for advanced biofuels. The rapid growth of the grain ethanol industry driven by fuel producers' and blenders' demand for ethanol has seen production exceed RFS targets. While total RFS targets have consistently been met to date, production volumes in some specific fuels categories, cellulosic ethanol in particular, have not yet met the RFS targets. EPA has multiple flexibility tools within the RFS that they can and have effectively used to manage the program, such as reducing the cellulosic ethanol targets each year to reflect anticipated production.

5. What has been the impact, if any, of the RFS on food prices?

Response:
The effect of the RFS on food prices has been minor for a number of reasons. First, corn ethanol consumes less than 10% of the global corn crop. Second, corn is almost solely used for animal feed, not directly in food. Third, for most foods the agricultural inputs are a relatively small part of the total cost vs. the embedded energy (fertilizer and fuel at the farm level, energy used in processing, packaging and transport), sales, marketing and labor costs.

Per the USDA Economic Research Service:

- Commodity prices are just one of many factors affecting retail food prices. Historically, if the farm price of corn increases 50 percent, then retail food prices as measured by the Bureau of Labor Statistics (BLS) in the Consumer Price Index (CPI) increase by 0.5 to 1 percent. Commodities make up less than 15 percent of the average value of retail food purchases, so even if all commodity prices doubled, retail food prices would increase by no more than 15 percent.

- Retail food price inflation has averaged 2.5 to 3 percent each year on average for the past 20 years, and 2012 was no different. In 2013, we will likely see a slight increase above those historical averages when food price inflation is expected to be between 3 percent and 4 percent, with increases centralized in animal products--eggs, meat, and dairy. Sweet corn, eaten by humans, is distinct from field corn (used for feed) and is not being heavily affected by adverse weather at this point.

As US grain ethanol capacity has very nearly reached the 15 billion gallons of annual production that is the upper limit of the RFS it is anticipated that additional demand for corn in the renewable fuels sector will be limited. At the same time, corn yield and productivity will continue to grow. Steadily increasing amounts of corn will be available for other demand sectors such as livestock.

6. What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

Response:

As grain ethanol capacity has essentially met the upper limits of the RFS targets, demand for corn for ethanol has almost topped out. The future growth of biofuels under the RFS will largely be in non-grain feedstocks such as corn stover and switchgrass. These advanced biofuels will help to expand the energy diversity, rural development and national security benefits of biofuels. As corn production continues to expand, and demand for corn into ethanol does not, to the degree grain ethanol production provided increasing grain prices that trajectory is now reversing.

7. What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?

Response:
Cellulosic feedstocks provide multiple economic opportunities for farmers and rural economies. For today's row crop farmers it provides an opportunity to derive an additional cash crop for current crop residues. One example is our farmer partnerships, which will provide corn stover at our first cellulosic ethanol facility in Nevada, Iowa. For others, it presents the opportunity for new revenue generating crops in regions of the country not currently benefiting from the economic growth associated with biofuels, be they switchgrass, sorghum, miscanthus or wood cellulose.

Because cellulosic ethanol biorefineries will generally be smaller than current grain ethanol facilities, and therefore more numerous, the construction and operation of these plants will provide construction and operating jobs in multiple communities, as well as the associated halo effect of additional economic activity that such facilities create for suppliers and contractors.

8. Will the cellulosic biofuels provisions succeed in diversifying the RFS?

Response:
Yes. While the RFS timeline was a bit aggressive, we have seen billions of dollars from the private sector invested in the development and demonstration of cellulosic biofuels. DuPont has operated a demonstration facility in Vonore, TN producing ethanol from corn stover and switchgrass for the past three years, making fuel that powers part of the University of Tennessee's fleet. INEOS BIO is starting up a plant in Florida making ethanol from cellulose in municipal solid waste. KIOR is similarly starting up a plant making a bio-crude from wood cellulose in Mississippi. DuPont, POET-DSM and Abengoa are all constructing corn stover to ethanol plants in the Midwest.

Within the next few years we will begin to see significant volumes of cellulosic ethanol enter the market. We would note that the above companies are all sophisticated, well capitalized entities with significant experience in building, starting up and operating manufacturing facilities. Several of them are also foreign based entities making significant capital investments in the U.S. and creating U.S. jobs because of the strong, stable policy signal of the RFS.

9. What is the scale of the impact of the RFS on international agricultural production and global land use changes?

Response:
The demand signal created by the RFS has induced investments in expanded corn production globally to meet that added demand, increasing overall agricultural output and economic value. The question of land use changes, particularly so-called indirect land use changes, is much

more difficult to quantify, in that it is generally a third order effect. Other sources of growing corn demand far outstrip that from the RFS, such that parsing the effects that are attributable to the RFS is an inherently speculative undertaking.

That said, the most authoritative work on this to date is in the EPA GHG modeling, which attempts to estimate indirect land use effects by linking environmental and econometric models. This modeling suggests a relatively minor element of indirect land uses changes associated with the additional corn demands from the RFS.

Thank you for the opportunity to comment on the House Energy and Commerce Committee's white paper on Agricultural Sector Impacts. If there are any questions or if additional detail is needed, please do not hesitate to contact me at Jan.Koninckx@dupont.com.

Sincerely,

Jan Koninckx

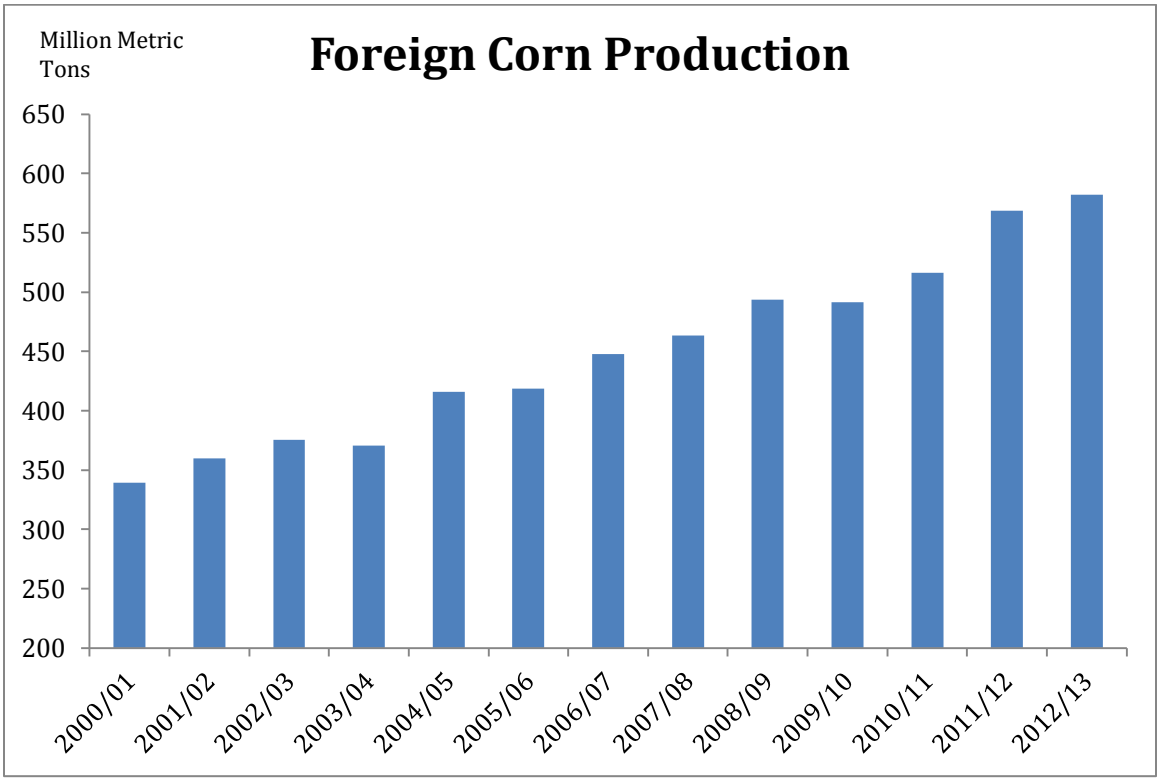
DuPont Industrial Biosciences

Response to Questions for Stakeholder Comment on RFS2

1. What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected?

Corn prices have certainly increased since the inception of RFS. Global commodity markets adjust to changes in demand by increasing supply, assuming the price merits the supply increase. However, there is no direct causal relationship to the rise in prices and the RFS. Corn is a globally grown and consumed commodity. The relationship of corn prices to other feed substitutes (soybeans, feed wheat, etc) in light of the growing "middle class" across the globe plays the largest determining factor in price equilibrium. Furthermore, the use of corn in ethanol production generates a high value feed ingredient (distillers grain) that substitutes 1.22 tons of corn per ton of co-product[1]

Growth in South American crops, specifically in Brazil, along with new investments in largely untapped places like Africa that never made economic sense historically can significantly increase Global supply of both Grains and Oilseeds. These areas are already responding with higher production. Figure 1 below shows historical foreign corn production growth.



Source: USDA Economic Research Service

Previously, low priced subsidized US corn was sold on the Global market at under comparable costs of production in these destination markets. This kept many developing Nations reliant on subsidized US grain. Without the need for grain subsidies to keep the US farmer whole, the price

[1] http://www.ers.usda.gov/media/236568/fds11i01_2_.pdf

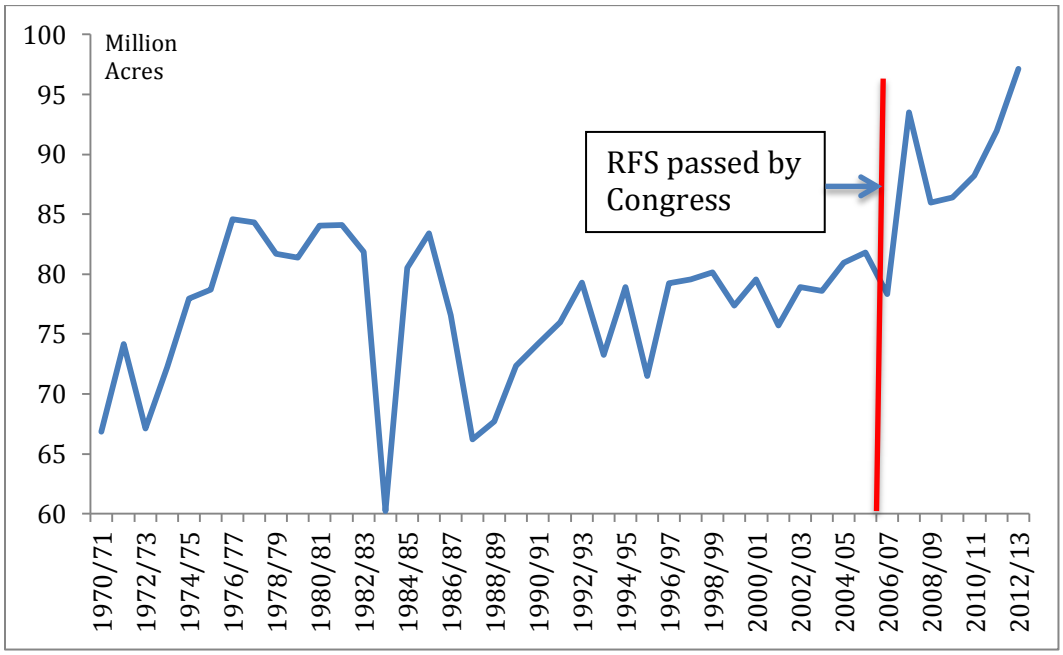
of Global corn now better reflects cost of production, and has become profitable for farmers both in and outside of the US without the need for subsidies such as direct payments to farmers.

2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

The ethanol industry is responsible for generating over 400,000 jobs the U.S., while contributing $42 billion to GDP according to independent research firm Cardno Entrix[2]. Along with adding jobs, the amount of government spending to support the farm economy has been reduced sharply since inception of the policy. From 1995 to 2005 the US Government provided $27.4 billion in the form of price support payments to US farmers (Loan Deficiency, Counter-Cyclical Payments for example). Since, 2006 this government aid has not been required. Along with this, government support for ethanol production (the excise tax credit and import tariff) expired as of December 2011.

Acres planted to corn have increased substantially in response to the increased demand. Figure 2 below shows historical growth of planted acres.

Figure 2: US Corn Planted acreage



Source: USDA

The top two seed companies in the US are investing significantly in research and development to ensure continued growth in crop productivity and yield. DuPont Pioneer invested 60% of their $1.7 billion annual R&D budget to increasing food production in 2011[3].

[2] http://ethanolrfa.org/page/-/PDFs/2012%20Ethanol%20Economic%20Impact.pdf?nocdn=1
[3] http://www.pioneer.com/home/site/about/news-media/news-releases/template.CONTENT/guid.61BB0973-83B3-CCB5-1085-EDABF3A40967

Monsanto invested more than $980 million last fiscal year[4] researching new tools for farmers. The annual research-and-development (R&D) budget is targeted at roughly 9% to 10% of sales. The company concentrates the vast majority of its R&D efforts on new biotech traits, elite germplasm, breeding, new variety and hybrid development, and genomics research.

The ethanol industry has contributed significantly to the US economy, including $43.4 billion to the GDP in 2012[5]. The table below shows the economic impact of the ethanol market in 2012.

Economic Impact of the Ethanol Industry: 2012

	GDP (Mil 2012$)	Employment (Jobs)	Income (Mil 2012$)
Ethanol Production	**$8,177**	**84,575**	**$4,831**
Direct	$783	11,971	$783
Indirect	$4,419	37,231	$2,384
Induced	$2,975	35,373	$1,663
Agriculture	**$32,399**	**267,605**	**$23,380**
Direct	$1,596	66,057	$1,240
Indirect	$16,347	42,172	$14,061
Induced	$14,455	159,376	$8,080
R&D	**$2,815**	**31,081**	**$2,035**
Direct	$967	9,264	$966
Indirect	$594	6,897	$368
Induced	$1,254	14,920	$701
Total	**$43,391**	**383,260**	**$30,246**
Direct	$3,347	87,292	$2,990
Indirect	$21,360	86,300	$16,813
Induced	$18,684	209,669	$10,444

Source: Cardno Entrix Study, January 2013

The only remaining support for growing ethanol production is the Renewable Fuels Standard. In its lifetime, the average annual subsidy received by the biofuels industry has been $1.08 billion. This compares to $4.86 and $3.5 billion for the oil and nuclear industry respectively, according to research done by DBL Venture Capital[6].

3. Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?

[4] http://www.monsanto.com/investors/Pages/corporate-profile.aspx
[5] http://ethanolrfa.org/page/-/PDFs/2012%20Ethanol%20Economic%20Impact.pdf?nocdn=1
[6] http://www.dblinvestors.com/documents/What-Would-Jefferson-Do-Final-Version.pdf

Yes. The market ultimately did its job and rationed demand with higher prices, as would be the case in any drought year. Crops are planted based on demand, and potential one-off natural disasters are not taken into account when acreage planting decisions are being made.

RIN inventories existed as determined by the EPA that would easily carry obligated parties through both the 2012 and 2013 compliance years.

The lesson learned is that a mature agricultural market will ration demand when needed, and carryover provisions put in place by the EPA in the RFS2 program to allow carrying excess RINs ultimately did their job as well. Supply disruptions are the reality of any market, no matter how well regulated. Energy and agricultural policy cannot be determined by the off chance there may be a natural disaster impact short term supply.

4. Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?

Yes, the language directly from the CAA is pasted below, with certain text highlighted to stress the flexibility provided. The key is that a petition is not even required from States or obligated parties for a waiver to be considered. Under a condition of prolonged economic harm or lack of supply, the EPA Administrator can also introduce a waiver directly.

(7) Waivers

(A) In general

The Administrator, in consultation with the Secretary of Agriculture and the Secretary of Energy, may waive the requirements of paragraph (2) in whole or in part on petition by one or more States, by any person subject to the requirements of this subsection, or by the Administrator on his own motion by reducing the national quantity of renewable fuel required under paragraph (2)—

(i) based on a determination by the Administrator, after public notice and opportunity for comment, that implementation of the requirement would severely harm the economy or environment of a State, a region, or the United States; or

(ii) based on a determination by the Administrator, after public notice and opportunity for comment, that there is an inadequate domestic supply.

5. What has been the impact, if any, of the RFS on food prices?

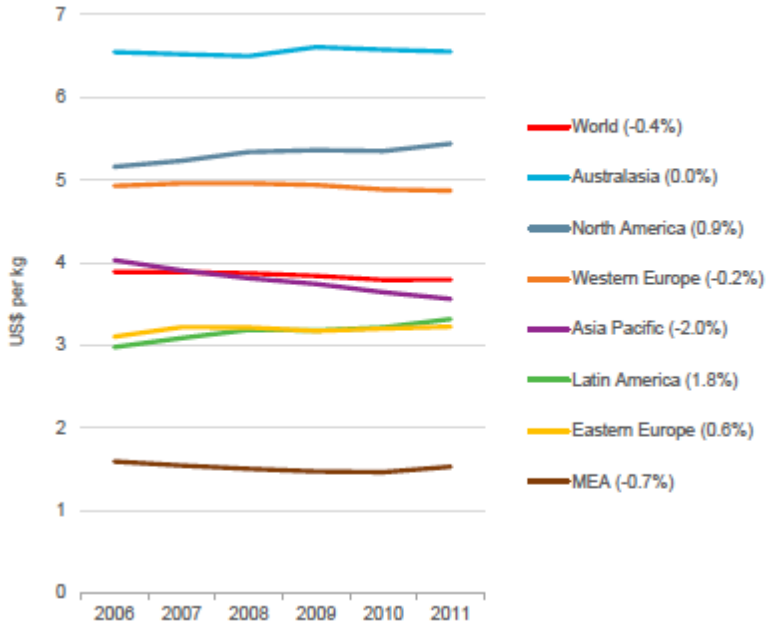
According to the USDA Economic Research Service, price increases pass through to U.S. retail prices at a rate less than 10 percent of the change in corn price. Given that foods using corn as an ingredient make up less than a third of retail food spending, overall retail food prices would rise less than 1 percentage point per year above the normal rate of food price inflation when

corn prices increase by 50 percent. Even this increase may be partially tempered by changes to corn use in food production[7].

For example, an 18-ounce box of corn flakes contains about 12.9 ounces of milled field corn. When field corn is priced at $2.28 per bushel (the 20-year average), the actual value of corn represented in the box of corn flakes is about 3.3 cents (1 bushel = 56 pounds). (The remainder is packaging, processing, advertising, transportation, and other costs.) At $3.40 per bushel, the average price in 2007, the value is about 4.9 cents. The 49-percent increase in corn prices would be expected to raise the price of a box of corn flakes by about 1.6 cents, or 0.5 percent, assuming no other cost increases. Our opinion for comparison – at today's costs of $5.50 per bushel, the cost of corn in a box of corn flakes is approximately 8 cents. Currently this represents less than 3% of the retail cost of the cereal.

According to the University of Wisconsin-Lacrosse, despite the augmented input costs, and economic and environmental factors, global retail packaged food prices in general have actually decreased steadily from 2006 to 2011 according to Figure 3 below.

Figure 3: Average Packaged Food Retail Prices by Region 2006-2011



Source: University of Wisconsin-Lacrosse

Knowing the historical relationship between energy and agriculture products, and the relentless year after year growth in global demand for both crude oil and grains, it did not surprise us to find the extremely high correlation between crude oil prices and the United Nation's FAO global food index since 2000. The FAO food index is a global basket of food commodities. The

7 http://webarchives.cdlib.org/sw1vh5dg3r/http://ers.usda.gov/AmberWaves/February08/Features/CornPrices.htm

coefficient of determination ('r squared') between the price of Brent crude and the FOA food index for the last twelve years is 0.932 - meaning that 93.2% of the change in the price of food as measured by the FAO food index is statistically 'explained' by the change in the price of oil during this period. This is an extremely high level of statistical correlation over a statistically significant time frame.

The USDA states that a 50% increase in corn price results in a 1% rise in food price to the consumer. Furthermore, the USDA stated that 15.8 cents of a dollar spent on food goes to the farmer; the remainder goes labor, packaging, transportation, advertising, and more. According to the Bureau of Labor Statistics, from 2006 to 2011 the price of sliced bacon has risen 34%. This compares to a 25% rise in ground beef and a 3% decline in the price of boneless chicken breast during the same period. According to their November 2011 investor presentation, Smithfield's pork segment has produced 4 consecutive years of record profitability. From 2007 to 2011 Smithfield's pork segment has tripled operating profit to $753 million. This record profitability coincides with the most rapid period of ethanol production growth. This clearly shows that even in a higher price feedstock environment, US meat producers can remain profitable without significantly increasing cost to the consumer.

6. What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

With continued support from the RFS2 program providing confidence to private investors, a significant amount of existing facilities could be retrofitted in the future with new technology to use alterative feedstocks, reducing reliance on corn.

7. What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?

Regardless of the feedstock used in biorefineries, they will continuously provide support and employment to the local economy. Whether it be from farming, transportation, processing or movement of co-products from the biomass being converted to fuels, local rural economies will benefit. Job creation in the processing and distribution of biomass is likely to be similar to the processing of corn, due to the logistic movement of the biomass in and co-products out of processing facilities being similar to corn.

8. Will the cellulosic biofuels provisions succeed in diversifying the RFS?

They certainly can with enough technological advancement. This requires private investment, which needs stable legislative footing.

9. What is the scale of the impact of the RFS on international agricultural production and global land use changes?

The incremental demand that the RFS program has provided specifically for corn has allowed Global grain markets to develop where they were not previously economical. During this same timeframe, emerging market consumption has grown, as incomes and consumption levels rise

across the globe. Global grain production is projected by the USDA[8] to be down only 3% in crop year 2012/13, even with the impact of the US drought. This Global production estimate is with the US production down 12.7% year over year. Production growth in Argentina, South Africa, Canada, and China have partially offset the lower US production. Seed technology improvements are allowing more and more corn and soybeans to be grown on less land.

Planted acres have increased in the US, but not in wetlands or sensitive areas. Marginal land that previously was not farmed due to lower yield potential is now in play for all crops, including Corn, Wheat, Soybeans, and others. While the impacts on land use change both domestically and globally are often debated within Academia, the direct impacts of the RFS on direct payments and farm subsidies are well documented.

[8] http://www.usda.gov/oce/commodity/wasde/latest.pdf

Comments from Ensyn Corp

To the House Energy and Commerce Committee
United States House of Representatives
April 29, 2013

Ensyn Corporation appreciates the opportunity to comment on the Renewable Fuel Standard Assessment White Paper as published by the House Energy and Commerce Committee. This, the second White Paper in a series of white papers, focuses on the impact of the RFS on the agricultural sector.

Ensyn is a producer of cellulosic renewable fuels (biomass-based biofuels). They have had continuous commercial operations in the United States and Canada for more than 20 years. The company uses a patented process to convert residual biomass from forest and agricultural sectors to high yields of light liquids. The products that can be developed from this liquid have many applications, most notably as a liquid fuel for heating oil, power generation, or transportation fuels. Ensyn has also formed strategic partnerships with major oil producers, chemical industry partners, landowners and others to develop their fuels.

Much of the focus within the White Paper and the ensuing questions is on the impact of renewable fuels on prices of certain agricultural products such as corn and soybeans. Ensyn produces their Renewable Fuel Oil (RFO) from cellulosic, non-food based feedstocks so is not in a position to respond to those questions. However the White Paper also discusses the role that cellulosic biofuels will play in potentially mitigating some current concerns associated with the RFS. Given Ensyn's 30 year experience in commercial RFO production, the company can respond in kind to those questions.

What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

Ensyn produces fuel from cellulosic sources which is exclusively non-food woody biomass. However Ensyn is also exploring agricultural waste as potential feedstock sources as well, for future commercial applications. The company sees a few potential areas where cellulosic biofuels can play a role to reduce the impact of the RFS on corn prices:

- Reduced energy costs. Ensyn's technology offers the hope and realistic possibility of reducing the cost of fuel. The company's projects a cash cost of production of $45 dollar cost of production per barrel of oil equivalent – essentially meaning as current and the foreseeable future, total costs of production are cheaper than market prices. . As such, relying only on the compliance requirements of RFS2, no further subsidies are required to mobilize future projects., and given the feedstock flexibility of using non-food base residual biomass, the ability of to produce significant quantities of cellulosic biofuels, mitigates the requirement to increase food based biofuels production levels to meet growing demand. Reduced costs in fuel would mean reduced costs in transportation meaning a lower cost for end users of corn products.
- Longer value chain for corn products. Ensyn is one of many companies that are pursuing technologies in cellulosic biofuel production. One of the feedstocks that is being

considered is corn stover and other cellulosic-based agricultural waste products. By adding value to the complete product, in this case corn, and unlocking value in the overall product has the potential to apply downward price pressure on the per bushel cost of corn. This clearly would play out over a number of years, but the potential is there to decrease the costs to consumers.

What impact are cellulosic biofuels expected to have on rural economies as the production of fuel ramps up?

Ensyn's planned facility development in the coming months and years will have a tremendously positive impact on rural economies. Ensyn's facility development will largely, if not entirely be based in rural regions of the United States. Since the feedstocks that Ensyn intends to use as a source of fuel are wastes or harvest residuals from the timber industry or agricultural sectors, Currently much of this material has no commercial value and is an of itself a cost to the operations. Given the commercial impact, and the secondary effect of improving forest management practices, facility development will be directed to regions adjacent to the harvest of those products. This would primarily include rural timber regions of the Pacific Northwest, the Northeast, Upper Midwest, and the Gulf Coast, and almost exclusively in areas that are currently stressed economically

Given these regions, the facility development and operations of Ensyn will support rural economies to a great degree. As planned development relates specifically to job creation, studies that have been done by the Analysis Group Inc., using IMPLAN input-output model assumptions to define just how many jobs might be created. The jobs study included full time jobs (or the equivalent thereof) for plant construction which would last approximately 18 months, supply chain jobs and plant operation jobs; it also looked at direct jobs and indirect or induced jobs as a result of the facility development. The study found that each facility would account for:

- 70 direct jobs and 55 indirect jobs for plan construction
- 57 direct jobs and 47 indirect jobs for supply chain support
- 24 direct jobs and 62 indirect jobs for plant operations

In total, there would be as many as 125 one-time jobs created for plant development and 189 permanent jobs created for supply chain and plan operations per facility. This will clearly have a sustained positive impact on rural economies in the short and long-term.

Will the cellulosic biofuels provisions succeed in diversifying the RFS?

Without a doubt, cellulosic biofuel provisions within the RFS will diversify the fuel supply that is associated with the Renewable Fuel Standard. As cellulosic fuel production facilities come online in the coming years, an increasing number of gallons of non-food based renewable fuels will be displacing petroleum products in the fuels markets.

In addition, the emergence of these fuels holds tremendous potential to put downward pressure on the costs of fuels. It was mentioned earlier that Ensyn's per barrel of oil equivalent cash production cash cost is $45 – the demand for scale as a result of those costs of production versus a cost of a barrel of oil will drive Ensyn's cellulosic fuels in to markets that include transportation fuels and fuels for energy production.

What is the scale of the impact of the RFS on international agricultural production and global land use changes?

Ensyn has engaged in a strategic alliance with Fibria Celulose S.A. Fibria is a Brazilian company and is one of the world's leading producers of wood pulp, with production capacity of over five million tons of pulp per year. Fibria's production, focused primarily on fast-growth eucalyptus, is supported by a forest base covering over one million hectares, spread across seven states in Brazil. The company owns and operates three pulp mills in Brazil and also owns 50% of Veracel, a joint-venture with Stora Enso, also in Brazil. Fibria's workforce totals approximately 18,900 professionals.

Fibria was created with a mission of developing a renewable forest business as a sustainable source of life and to produce economic wealth in a responsible, shared and inclusive manner. The company has fully dedicated itself to this commitment through an ongoing effort. As part of this posture, Fibria adopted policies and procedures that impede it from acquiring land whose documentation is incomplete and, also, that take into account environmental and social impacts — such as the rights of traditional communities, the existence of previously established trails or paths and the need to ensure water supplies for domestic purposes. These conditions must be respected during the forest management planning process for any given location.

Ensyn and their partners believe in the forest management, forest agricultural and land use practices exhibited by Fibria and look for similar traits in most if not all of the company's business partners. Ensyn is proud of these partnerships and believes that the continued pursuit of such partners will lead to minimal impact on land use changes and will result in responsible forest management practices.

Submitted by:

Dr. Robert Graham
CEO
Ensyn Corporation

Environmental and Energy Study Institute

April 29, 2013

The Honorable Fred Upton
Chairman, Committee on Energy and Commerce
U.S. House of Representatives

The Honorable Henry Waxman
Ranking Member, Committee on Energy and Commerce
U.S. House of Representatives

RE: Comments on the Renewable Fuel Standard Assessment White Paper: Agricultural Sector Impacts

Dear Chairman Upton and Ranking Member Waxman:

Thank you for providing an opportunity for stakeholders to comment on this white paper.

The Environmental and Energy Study Institute (EESI) is dedicated to promoting an environmentally and economically sustainable society. EESI was founded by a bipartisan Congressional caucus almost 30 years ago, and, since then, as an independent not-for-profit organization, EESI has remained committed to providing Congress with the information, analysis, and expertise that it needs to address the nation's complex and difficult environmental and energy challenges. EESI seeks to advance energy efficiency and renewable energy (including sustainable biomass energy), based upon a growing body of knowledge and experience. Energy efficiency and renewable energy technologies can produce vital "win-win's" for public and environmental health, energy security, a prosperous, sustainable economy, and for mitigating and adapting to a rapidly changing climate.

EESI fully supports the Renewable Fuel Standard (RFS) goal of displacing finite, polluting, petroleum-based fuels with cleaner, more environmentally sustainable advanced and cellulosic biofuels. Advancing public and environmental health and mitigating harmful climate change must be a top national priority. The RFS is contributing importantly to that.

We also believe the RFS needs to be left **AS IS** to achieve that goal -- including allowing for substantial volumes of conventional ethanol.[1] In our view, the success of advanced/cellulosic biofuels depends in significant part on the continued success of conventional ethanol production, infrastructure, marketing, and distribution systems. We note that some of the new cellulosic biofuel plants now under construction are designed to be integrated with conventional ethanol facilities -- with co-generating heat and power, the same feedstock suppliers, the same transportation, logistics, distribution systems. Dozens more cellulosic ethanol plants are planned based on this model. However, it is doubtful that

[1] For additional background information with references, see EESI's August 2012 Issue Brief http://www.eesi.org/issue-brief-requests-waive-renewable-fuel-standard-aftermath-2012-heat-wave-and-drought-20-sep-2012

these types of integrated biorefineries will remain economically viable if Congress pulls the plug on conventional ethanol at this time. We would also note that the overall efficiency of ethanol production has increased significantly -- a very important gain as the industry seeks to embrace an increasing variety of feedstocks and technologies.

Public and environmental health is also a critical concern for us. The presence of aromatics in gasoline and its related toxic air emissions in urban areas are of special concern. In this respect, conventional ethanol is already playing a critical role. Ethanol blends today have helped improve air quality for millions of people in cities across the United States. Using higher blends of ethanol in the future (e.g. E30 - E85) in highly efficient, ethanol-optimized engines remains one of the best ways to provide the high octane needed in fuels while reducing emissions of harmful aromatic air toxics from transportation fuels. This is especially critical in urban areas where most people live and where toxic emissions from transportation fuels today are concentrated. Given what scientists are learning about the public health impacts of exposure to polycyclic aromatic hydrocarbons (PAH's), produced by the combustion of aromatics, the United States should be moving away from the use of aromatics in fuels, not away from the RFS and biofuels.

We also observe that the RFS thus far has been a tremendous win-win for rural economic development, job creation, consumers, and energy security. The ethanol industry was growing and producing jobs over the past five years when other industries were cutting employment.[2] Lower cost ethanol saved consumers money at the pump at a time when they needed it most. It helped buffer the impact of price spikes in the global petroleum market.[3] The U.S. is more energy secure today because it is much less dependent on petroleum, thanks in part to the RFS and improving vehicle fuel efficiency.

The RFS started the nation in a positive new direction toward strengthened economic, energy, environmental, and climate security. It would not have happened by itself without Congressional action. However, the nation still has a significant way to go to achieve the goals set by the RFS. The advanced biofuels industry is just starting to ramp up to commercial scale. Yet, if Congress intervenes now and reduces the scope and magnitude of the RFS, much of this progress will be lost. Tens of billions of dollars worth of public and private investment will be stranded and lost. Tens of thousands of people will lose their jobs. The nation will face increased energy insecurity and the higher costs of oil dependence. Premature death and suffering will increase due to urban airsheds fouled with toxic petroleum-based air pollutants. And, climate change mitigation in the transportation sector will be reduced and delayed unnecessarily and dangerously. And what is gained by the elimination of the RFS?

1. **What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected?**

Many factors affect corn and soybean prices. Of course, rising demand for conventional corn and soy-based biofuels can create upward pressure on prices for those commodities. The question is <u>how much</u> pressure does the RFS exert compared to other factors? In our assessment, after reviewing many analyses, other factors in aggregate likely have played much bigger roles driving up corn and soy prices (and increasing harmful price volatility) than the RFS.

[2] http://ethanolrfa.org/page/-/PDFs/2012%20Ethanol%20Economic%20Impact.pdf?nocdn=1
[3] http://www.card.iastate.edu/publications/dbs/pdffiles/12wp528.pdf

First, it is important to note that relatively little corn produced in the U.S. is used for direct human consumption. Most is used for animal feed in the U.S. or is exported for animal feed. About a third of the corn crop is used for biofuel (net after accounting for the Dried Distillers Grains (DDG's), a high-protein co-product of ethanol production also used for animal feed). Indeed, the protein and the corn oil are available for other uses, as the only the corn starch is used to produce ethanol. About ten percent is used for corn sweetener, other processed foods ingredients, other bio-based products, seed, and carry-over stocks.[4]

In 2012-13, the largest factor affecting prices was the devastating drought across the Midwest and Great Plains. Were it not for the drought, corn and soybean prices likely would have remained stable or declined with a bumper crop -- despite increasing U.S. and global demand for food, animal feed, and renewable fuels. However, the drought dramatically reduced available livestock forage and feed, sending prices soaring, and creating tremendous hardship for poultry, livestock, and dairy producers and ethanol producers.

Extreme weather events in crop-producing areas around the world have had an increasing impact on grain and oil seed prices and price volatility over the past several years. In turn, responses by various governments to these crop failures (e.g., grain hoarding, price controls, and export bans) have often contributed even more to price spikes and volatility.

After extreme weather anomalies, the next biggest factors affecting the price of corn and soybeans are petroleum and natural gas prices. Petroleum and natural gas account for a significant portion of the cost of corn and soy production. During the past several years, since the RFS was enacted, these prices have been highly volatile.

Growing global demand for meat and dairy is also a significant factor. By far, most corn and soybeans produced in the U.S. are used for animal feed for dairy, poultry, and meat production. Global demand for these products has been growing steadily, thanks to rising incomes in China and other developing countries. That, and increasing demand due to continuing global population growth, exert continuing upward pressure on corn and soy prices, as well as prices for other grains and food commodities.

Another factor that likely has had a significant impact on all commodity prices (and especially price volatility) over the past five years has been the speculative flow of tens of billions of dollars into commodity markets. Investors, seeking higher returns than could be found on declining or slow growing stock markets, flooded commodities markets with new investments through new investment vehicles.

Changes in the price of corn and soy inevitably affect the prices of other crops. When consumers face higher prices for meat, dairy, or processed foods with corn- or soy-based ingredients, they begin seeking less expensive nutritional substitutes. When the prices of corn and soy animal feed spike, many dairy and livestock producers switch to other grains and forage (where available) or they reduce the size of their herds and flocks. High prices for corn and soy also influence planting decisions by grain producers, resulting in less acreage planted in other grains in regions where that makes economic sense. Each of these supply and demand factors can contribute to increasing prices for other agricultural commodities.

It should be noted that ethanol producers, like livestock producers, are also sensitive to the price of corn, and respond in a similar fashion. When the supply is short and the price is too high to be

[4] http://www.ncga.com/uploads/useruploads/woc_2012.pdf

profitable, they use less of it and produce less ethanol. The RFS was designed to allow significant flexibility for fuel blenders to adjust the amount of ethanol they blend year-to-year and adjust for years like 2012 when the corn harvest fell short. With the 2012 drought, dozens of ethanol plants shut down and ethanol production declined by ten percent or more. This reduced demand from the ethanol sector, and other "demand destruction," helped to ease corn prices significantly from the August 2012 high.

It should also be noted that high corn and soy prices can also produce positive impacts. Higher prices encourage farmers around the world to produce more. Higher prices allow more farmers to be more profitable, which in turn allows them to invest in new crop varieties, equipment, technologies, and other improvements that will increase future yields while reducing future costs. Global production responds. Farmers in Brazil and Argentina were quick to see the economic opportunity in the U.S. drought and responded quickly to the shortfall in the U.S. 2012 crop and produced bumper crops. And, in the U.S. in 2013, farmers are expected to produce a bumper crop of corn this year as the drought has subsided. In turn, more production at home and abroad will eventually result in easing price pressures.

As a matter of public policy, after this difficult drought year (and in anticipation of more extreme weather to come as the climate changes), it seems the question for Congress is not whether to abandon the RFS. Rather, Congress should consider which direction in energy and agricultural policy is of greater importance for the United States strategically and budgetarily: 1) keeping the price of meat and dairy cheap (with cheap corn and soybeans), with all of the harmful public health, budgetary, environmental , and climate change impacts that come from excessive U.S. meat consumption, and returning to greater dependence on costly, highly volatile global petroleum markets, or 2) continuing to implement a robust RFS, with all of the energy, economic, environmental, and climate benefits that come with it, while letting the price of meat, dairy, and corn-based ingredients rise modestly.

2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

The RFS has contributed to both an increase in agricultural output, and, more importantly, to an increase in the value of U.S. agricultural output. It has created new demand for both conventional crops and for new feedstocks such as crop residues, perennial grasses and other bioenergy crops, forestry residues, and urban biogenic waste streams. The RFS is creating demand for local feedstocks that can be found in every region of the country.

For every ethanol plant, hundreds of direct and indirect jobs have been created. More than 200 plants have been built so far, each with its own associated staff on site, construction workers and engineers, feedstock suppliers and processers, equipment and materials suppliers, truckers, barge and rail operators, and people who work in businesses and communities that grow around biofuel plants. Hundreds more biorefineries and hundreds of thousands of new employees will be needed to achieve the RFS goal by 2022, according to the USDA. This is a big plus for the U.S. manufacturing sector.

If renewable fuel production and use continues to expand rapidly, if the average fuel economy of the U.S. vehicle fleet continues to improve, and if overall fuel demand remains flat or declines (all of which, we would argue, are wise and necessary national policy goals), then we would expect to see a decline in employment in the oil industry, accompanied by an equal or greater increase in employment in the biofuels sector and a significant improvement in public health and environmental outcomes.

3. **Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?**

EESI urged the EPA to deny the waiver request.[5] In our assessment, granting the waiver request would have done relatively little to ease the hardship for poultry, dairy, livestock, and processed food producers, but would have had a devastating impact on both the conventional ethanol industry and the advanced biofuel industry. A waiver would have created tremendous uncertainty among advanced biofuel investors, developers, and producers at a time when the industry was just beginning to construct the first commercial scale plants.

The impacts of the 2012 drought have presented the EPA and the industry with the first test of the flexibility that Congress built into the RFS. The reassuring indicator that the EPA made the right call is that corn and soy prices have moderated significantly since the summer, and the market for Renewable Identification Numbers (RINs) has picked up.

4. **Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?**

Yes. The RFS gives the EPA administrator the authority to adjust renewable fuel blending volume requirements year-to-year based on the EPA's assessment of the industry's capacity to produce the required amount of biofuels. The RFS gives the EPA administrator the authority to waive the standard when there is evidence that it is causing harm. The RFS allows blenders to accumulate additional RINs in years of surplus, and to use or sell surplus RINs when renewable fuel supplies are tight. The RFS also allows blenders to delay fulfilling volume requirements from one year to the next.

5. **What has been the impact, if any, of the RFS on food prices?**

Slight. See answer to question one. Other factors have a much bigger aggregate impact on food prices – such as the 2012 drought, oil and gas prices, other crop failures due to extreme weather events, etc. The cost of energy in food production, processing, packaging and transport is huge. This hinges largely on oil and gas prices.

6. **What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?**

Again, the RFS has some effect on corn prices, but other factors in aggregate likely have a bigger impact on corn prices.

The most important factor for lowering corn prices is for the drought to subside (as it has) and for pastures and corn producers to have a good growing season and harvest.

Corn ethanol will likely reach its maximum cap under the RFS by 2015, and thus, will not exert any additional upward pressure on corn prices from that time on (all else staying equal).

Corn ethanol is likely to remain a competitive player in the biofuels market for some years to come (up to the statutory cap of 15 billion gallons per year), until the advanced and cellulosic biofuel industry is

[5] http://files.eesi.org/101212_EESI_Comments_to_EPA.pdf

fully up and running, producing biofuels at a lower price. Two of the key advantages of cellulosic biomass are that it can be produced with fewer resource inputs, and it can be produced on marginal land. So, over time, cellulosic biofuel will likely become cheaper to produce than corn ethanol which has relatively higher input costs and is grown on more expensive land. This may free up some corn production capacity to be used for other purposes.

7. **What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?**

Cellulosic biomass and biofuel production offer many opportunities for rural communities:

- Diverse feedstocks can be grown or harvested all over the country – not just in the Midwest. More rural communities in more regions of the country will be able to benefit.
- Cellulosic biomass can be grown on marginal land, allowing currently unproductive and depleted land to be put to higher economic use. Thus, cellulosic biomass production can occur alongside conventional agricultural production on higher value land.
- Using perennial grasses and energy crops as buffers between conventional row crops and watersheds and in flood plains can help clean up rivers and streams and rural water supplies, reduce soil erosion, mitigate flooding, and produce a new revenue stream for farmers. Cellulosic biomass production will require new employees, farm implements, trucking, processing, logistics, products, supplies and services, all of which will contribute to the growth of rural communities.

The USDA estimates that more than 400 biorefineries will need to be built in addition to the existing fleet to fulfill the RFS.

8. **Will the cellulosic biofuels provisions succeed in diversifying the RFS?**

Certainly. But the future of the cellulosic and advanced biofuel industry is in large part dependent on the continued success of the corn ethanol industry. Cellulosic ethanol is going to depend on much of the same ethanol infrastructure and distribution systems now used by the corn ethanol industry. Some of the first cellulosic ethanol plants will be operating next door to corn ethanol facilities as a way to reduce costs, using the same biomass suppliers, co-generating heat and power, sharing distribution systems, etc.

9. **What is the scale of the impact of the RFS on international agricultural production and global land use changes?**

Again, in our view, the RFS may be a factor, but a relatively small one, in international agricultural production and global land use change. Based on our understanding and observations, other factors are key drivers of international landuse change. How big or small a factor it is in driving land use change or prices is difficult to quantify with any degree of scientific rigor. We do not believe that it is as big a factor as many have made it out to be. We believe there is sufficient capacity on earth to **sustainably** meet basic human needs for food, feed, fiber, fuel, clean water, and healthy, functioning ecosystems using existing agricultural and abandoned lands, while preserving remaining natural forests and grasslands. However, while the argument for pursuing a robust, more sustainable RFS is compelling for many solid environmental, climate, energy, and economic reasons, the same cannot be said for policies that promote a return to petroleum dependence and unlimited global demand for meat. This is not

sustainable. We recommend that Congress turn its attention to developing and strengthening policies such as the RFS to help our nation avoid making such a mistake.

These are all topics worthy of much more discussion than we have been able to give here. We would be happy to pursue these issues at greater length with you and your staff.

Sincerely,

Carol Werner
Executive Director

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America's Ethanol Supporters

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April 29, 2013

Representative Fred Upton
Chairman
House Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

Representative Henry Waxman
Ranking Member
House Committee on Energy and Commerce
2322 Rayburn House Office Building
Washington, DC 20515

Dear Chairman Upton and Ranking Member Waxman:

Growth Energy is the leading trade association for America's ethanol producers and supporters. Growth Energy promotes expanding the use of ethanol in gasoline, decreasing our dependence on foreign oil, and creating American jobs. As such, we are pleased to submit these comments in response to your questions for stakeholder comment released on April 18, 2013 regarding the Agricultural Impacts of the RFS.

Sincerely,

Tom Buis
CEO, Growth Energy

Questions for Stakeholder Comment

1. What has been the impact of the RFS on corn prices in recent years? What has been the impact on soybean prices? Have other agricultural commodity prices also been affected?

Like any commodity, the market responds to natural forces such as supply and demand. The market for corn is no different. While the RFS has created additional demand for corn, more importantly, it has driven additional corn production that otherwise would not have occurred. For decades, farmers were paid far less than the price of production for their corn, and the American taxpayer heavily subsidized the price. Last year, ethanol critics alleged the RFS caused prices to rise more than $8 per bushel, when, in fact, the price increase was a direct result of one of the worst droughts in our nation's history. In fact, those purchasing corn could have locked in prices for under $5 a bushel as late as June 2012. The law has tools built in that allow states to waive the RFS in cases of severe economic harm. Twice, states have petitioned EPA to waive the RFS and both times, the petitioners have failed to make the case.

2. How much has the RFS increased agricultural output? How many jobs has it created? Have any jobs been lost? What is the net impact on the agriculture sector?

The RFS has been one of the most successful energy policies over the last 40 years. It has helped to reduce our dependence on foreign oil, supports hundreds of thousands of jobs, lowered prices at the pump for millions of American drivers and improved our nation's environment. Currently, the ethanol industry represents more than $40 billion of annual economic investment, and supports nearly 400,000 American jobs. In addition to providing 10 percent of America's fuel supply, the industry processes more than a third of the total corn volume used in ethanol production back into animal feed in the form of high-protein, nutritious distiller grains; the industry produced 38.8 million tons of distiller grains just last year. The RFS has also had a tremendous positive impact on the agriculture sector. According to USDA, since 2004, planted acres of corn have increased from 80.93 million acres to 97.28 million acres for 2013. Harvested corn acres increased from 73.63 million acres in 2004 to 87.38 million acres in 2012. Similarly, production has driven technology and efficiency – since 2000, corn yields have gone from 137 bushels per acre up to 153 bushels per acre in 2010. Likewise, taking an example from the poultry industry, USDA shows that turkey production was $2.89 billion in 2004 increasing to $4.99 billion in 2013. These figures prove the RFS has, and will, continue to drive growth across American agriculture.

3. Was EPA correct to deny the 2012 waiver request? Are there any lessons that can be drawn from the waiver denial?

Yes, EPA was correct to deny the 2012 waiver request. Growth Energy filed extensive comments in response to the waiver request reiterating the case that EPA ultimately made – that petitioners failed to show severe economic harm caused by the RFS. Waiving the RFS would have had a significant negative impact on American consumers and drivers, on the ethanol industry and on rural communities, and would have done little to reduce the prices of corn and other commodities. According to data that Growth Energy submitted as part of the waiver, we found that a full waiver of the Renewable Fuel Standard could lead to closed or idled biorefineries throughout the nation, resulting in the loss of 3,000 to 8,300 jobs in ethanol-producing areas and $2.9 to $7.8 billion in lost revenues. Consumers would then suffer much higher prices at the gas station, costing U.S. drivers more than $7.5 billion a year or $62.70 per household - far more than any potential impact on food prices. The waiver could also mean losses of between $5.8 and $27.75 billion for U.S. corn farmers, exacerbating what is already a time of economic hardship in rural America.

4. Does the Clean Air Act provide EPA sufficient flexibility to adequately address any effects that the RFS may have on corn price spikes?

The Clean Air Act does provide EPA sufficient flexibility to adjust the RFS in cases of severe economic harm; however, this is a tool that should not be used each time corn prices increase. Corn and other commodities operate on a futures market where those who use the commodity can make informed business decisions to hedge their risk by purchasing contracts at the appropriate time. Corn prices in 2012 were only briefly above $8/bushel, and were pushed that high because of numerous factors, including speculation. Since that time, corn has lowered to $6.22/bushel (April 24, 2013), a decrease in price of $2 and a decline of nearly 25 percent. The market has, and continues, to work based on supply and demand. In cases of severe economic harm, EPA does have the flexibility to act; however, the RFS has never been demonstrated to show such economic harm. To the contrary, the RFS has shown significant benefits. Again, we reiterate that waiving the RFS could cost American drivers more than $7 billion in increased gasoline prices at the pump – prices that all who use gasoline would pay including livestock producers and other agricultural sectors.

5. What has been the impact, if any, of the RFS on food prices?

The RFS has not had an impact on food prices. Ethanol uses #2 yellow corn, which is used almost exclusively for animal feed, and the industry returns more than one-third back in the form of high-protein distiller grains that are used for animal feed. The price of oil and gasoline have had a far larger impact on food prices – in fact, USDA has said that commodity prices account for just 14 percent of the retail price of food while marketing, packaging and transportation costs account for 86 percent of the retail price (please see the attachment entitled "What Really Impacts Food Prices"). Additionally, USDA data shows that food inflation for 2012 is in line with the historical averages for food inflation – not catastrophic as critics have claimed. While our critics have said the ethanol industry uses a significant portion of the corn crop, if you look beyond simple volume of corn and into the numbers of the net corn acreage used, the industry actually only utilizes 17.5 percent of the acres because of displacement of corn and soybean meal through the use of distiller grains (noted in the chart below as well as in our attached comments to EPA). Finally, the following chart further proves that food prices mirror the spiking price of oil, which appears to have more of an impact on the price of food than domestically-produced ethanol.

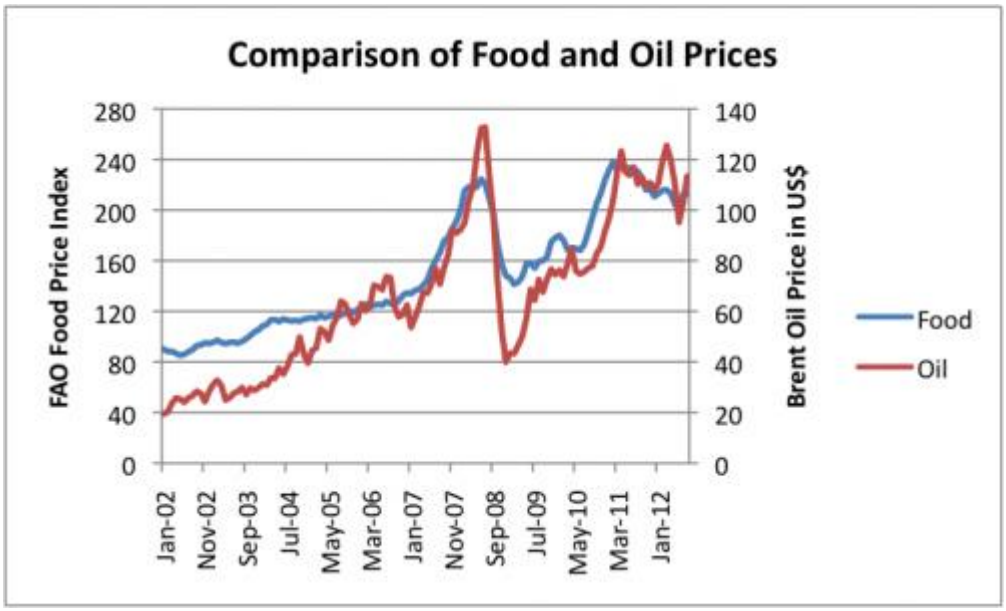
~~Forty percent of the corn crop goes to ethanol~~

2010/2011 Crop Year – 13.6 BG Ethanol

	M Acres
Total Corn Acreage	81.5
Corn Ethanol Acres, Gross	32.3
DDGs Correction, Corn	-9.6
DDGs Correction, Soy	-8.4
Net Acres	14.3

- Actual "net acres" used for ethanol are less than 50% of gross acres
  - Only the starch is used for ethanol
  - DDGS displaces corn and soybean meal
  - Corn yields are three times soybean yields
  - **17.5% of net corn acres are used for ethanol**

Net acre determination



Comparison of Food and Oil Prices. Food Prices indices are as published by the Food and Agriculture Organization (FAO) of the United Nations, available at http://www.fao.org/worldfoodsituation/wfs-home/foodpricesindex/en/
Oil prices are monthly average Brent Oil spot prices, as published by the US Energy Information Administration. http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=rbrte&f=m

Read more: http://ourfiniteworld.com/2012/09/26/high-priced-fuel-syndrome/#ixzz2RsIRVxKb

6. What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

Growth Energy represents first and second generation biofuel producers. In fact, the bulk of the next generation of ethanol will be built on the foundation of first generation ethanol. We believe there will continue to be markets for conventional, grain-based ethanol as well as new avenues for next generation biofuels. Similar to agriculture, we will continue to see advances in yield and in the use of other feedstocks – these innovations will all help achieve the goals of the RFS. For example, our members are already using grain sorghum as an advanced biofuel, significantly researching algal biofuels, and are poised to produce the first commercially available cellulosic biofuel from corn stover – all of which will advance the goals of the RFS.

7. What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?

As we saw with the development of first generation ethanol, we will continue to see development of next generation biofuels, and these advances will further improve rural economies. Collection of biomass, cultivation and harvest of alternative feedstocks and construction of new facilities will both create jobs across the nation and continue the success of the RFS. While first generation ethanol has been predominantly located in the traditional "cornbelt," cellulosic biofuels offers the opportunity and potential to create jobs and production in all fifty states with the use of crop waste, woody biomass and other feedstocks. For example, EPA has said that facilities will begin production in 2013 in Florida and Mississippi as well as in Kansas and in Iowa.

8. Will the cellulosic biofuels provisions succeed in diversifying the RFS?

While advanced and cellulosic biofuels will diversify the RFS, there will always be a place for conventional grain-based ethanol and its coproducts. For example, some of the first cellulosic biofuels will be produced from corn stover in plants co-located with traditional corn ethanol facilities. Not only will we see a diversity of feedstocks, but we will continue to see improvements in yields, production efficiency and in greenhouse gas reductions. While traditional ethanol reduced greenhouse gas emissions 59 percent (http://onlinelibrary.wiley.com/doi/10.1111/j.1530-9290.2008.00105.x/abstract), cellulosic ethanol will reduce greenhouse gas emissions by 87 percent when compared to gasoline (http://www1.eere.energy.gov/vehiclesandfuels/pdfs/program/ethanol_brochure_color.pdf).

9. What is the scale of the impact of the RFS on international agricultural production and global land use changes?

Growth Energy and its members believe the RFS has provided significant benefits to farmers worldwide. The global corn crops of recent years have been record-breaking, and have provided economic opportunities to many farmers and communities most in need. Again, corn is a global commodity, and by expanding production, it offers many opportunities for those who may not have otherwise had them. Farmers and producers make business decisions based on what is best for them and their community.

INEOS Bio

INEOS Bio

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April 29, 2013

The Honorable Fred Upton, Chairman
The Honorable Henry Waxman, Ranking Member
Committee on Energy and Commerce
2125 Rayburn House Office Building
Washington, DC 20515

RE: Comments on Agricultural Sector Impacts and the Renewable Fuels Standard

Dear Chairman Upton and Ranking Member Waxman:

On behalf of INEOS Bio, I appreciate the opportunity to submit the following comments regarding the Energy and Commerce Committee's second white paper on the renewable fuel standard (RFS).

INEOS Bio is part of INEOS, one of the leading petrochemical companies in the world. INEOS is a leading producer of commodity chemicals and one of the leading independent refiners and producer of biofuels in Europe. In the U.S., INEOS employs over 3,000 people and we have manufacturing facilities in Alabama, Ohio, Texas, Illinois, Massachusetts, California, and Florida.

The Indian River BioEnergy Center coming online in Florida is one of the first advanced biofuels facilities in Florida and is the first plant in the world showcasing our new technology that converts waste materials into advanced biofuels and renewable power. We are in the final start-up phase and when the facility is in full operation, it will produce 8 million gallons of cellulosic ethanol and 6 megawatts (gross) of renewable power annually. We use the vegetative, yard and agricultural waste from the Indian River/Treasure Coast region to run this plant and make cellulosic ethanol and renewable power.

As a producer of cellulosic biofuel—the type of innovation the RFS was created to encourage—these comments are focused on questions six, seven, and eight. Put simply, modifying the RFS will undermine investments in innovation and and jeopardize our ability to displace fossil fuels with cleaner, next-generation domestic fuels that do not utilize food-based feedstocks.

Question 6: What role could cellulosic biofuels play in mitigating the potential effects of the RFS on corn prices?

Cellulosic biofuels—by definition—cannot utilize corn as a feedstock. Increased reliance on cellulosic fuels will diversify our fuel mix and reduce dependence on any one feedstock. Existing corn ethanol facilities can be retrofitted for advanced biofuels. Alternatively, cellulosic facilities can be "bolted" on to such plants to utilize the cellulosic portions of corn, such as the cobs or husks. This makes the overall lifecycle for ethanol production process more efficient. As cellulosic technologies like ours are commercialized, biofuel producers will have greater flexibility in responding to rapid changes in feedstock price or source due to drought or other issues. Hybrid technologies like ours can mitigate risk by having a combination of feedstocks which are both positive and negative cost – thus having less pressure on the market.

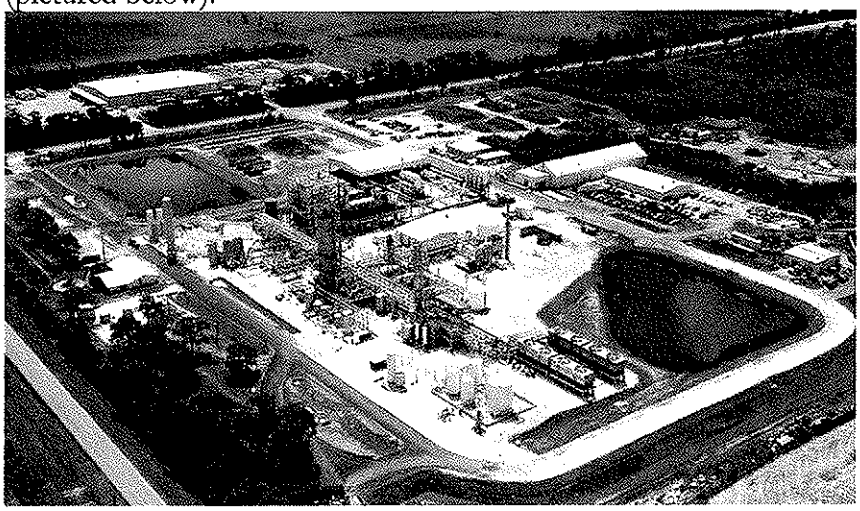
However, the future commercialization of cellulosic ethanol depends in large part on the infrastructure currently in place for the first-generation ethanol. Maintaining our current set of biofuel policies will help

the next-generation biofuels climb on the shoulders of the first generation and produce greater ability to continue to reduce or dependence on foreign oil.

Question 7: What impact are cellulosic biofuels expected to have on rural economies as the production of such fuels ramps up?

Cellulosic biofuels will drive investment and jobs in both rural and urban economies. With feedstock flexibility, cellulosic producers are able to build plants and create jobs near a range of suitable feedstocks. That may mean new plants utilize corn cobs and husks in the Midwest; woody biomass in the Northeast, Northwest, and Southeast; energy crops in the South. With waste, you can build plants closer to the source and throughout the country – both in urban and rural areas. Thus, new technologies like INEOS Bio's broaden our ability to diversify rural economies. A case example is our facility in Florida which is in a rural agricultural area.

Over the past four years INEOS Bio has invested more than $130 million into its Vero Beach facility. (pictured below).



Indian River BioEnergy Center, Vero Beach Florida, 2012

We employed over 400 people during the engineering and construction phase of the project. Of the more than 60 full-time employees for the Vero Beach plant, we hired over 40 from the Treasure Coast region—bringing good wage jobs and a payroll of over $3 million per year to a county that had over 15% unemployment when we started this journey and is still over 9% today. Notably, approximately 90 percent of our BioEnergy Center's components were manufactured domestically in such states as Ohio, Kentucky, South Carolina, Texas, New York, North Carolina, and Missouri.

Moreover, all of our feedstock is taken from within the surrounding 75-mile radius of Vero Beach. We are utilizing the county's and neighboring counties vegetative, yard and agricultural waste that otherwise would be burned in fields or landfilled. Former citrus orchards surround our Vero Beach plant. Florida growers, unable to compete with increased foreign competition, shut off the irrigation to their fields, slowly killing their grapefruit groves. Not only do we provide a way to deal with that waste problem, but those farmers are now interested in growing energy crops for our facility, which could put the land to productive use and generate additional income and jobs in a depressed region.

Additionally, all of the ethanol we produce will be consumed in the local market. Thus, for this region of Florida, communities will solve some of their waste problems, provide jobs, and produce a valuable product. The economic value will stay within the community.

Now that our plant is constructed, municipalities and companies from across the country and the world see our technology as a potential solution to a community waste problem.

This story can repeat itself in communities nationwide. Unlike temporary infrastructure to be moved or abandoned when the well runs dry or the resource depleted, investments in cellulosic plants will last for decades because they utilize renewable, sustainable feedstocks and provide a solution for reducing waste. They also result in significant environmental benefits: according to an independent study by Eunomia, our process will result in 100% emissions reductions compared to gasoline.

In sum, first generation ethanol is already generating great economic benefits for rural communities, and the next generation will increase and expand upon those economic outcomes.

Will the cellulosic biofuels provisions succeed in diversifying the RFS?

The cellulosic biofuel provisions, if the RFS is given a chance to succeed, will succeed in diversifying our biofuel mix with non-food feedstocks.

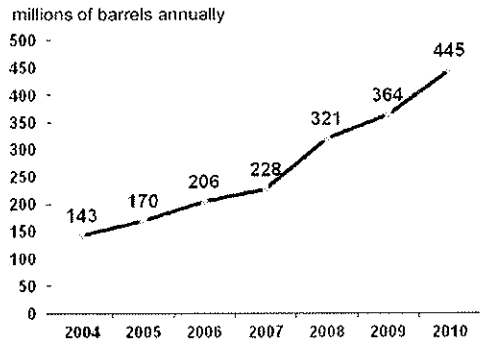
Technology risk and a high cost of capital can impede the commercialization of new clean energy technologies like cellulosic biofuels. The recent start-up of INEOS Bio's BioEnergy Center in Vero Beach and the construction of other biorefineries around the country demonstrate that the next-generation biofuel industry is rapidly overcoming previous technology hurdles. But the financing challenge and market access remain. Repeal or modification of the renewable fuel standard only would exacerbate the financing challenge to local companies by destabilizing the policy environment for all biofuels. The RFS gives confidence to our investors that there will be a market for our cellulosic biofuel. What kind of signal is the U.S. sending to other companies who want to invest in this sector – or other emerging sectors – when there's no long-term commitment for government policies that underpin and form the base for making investment decisions?

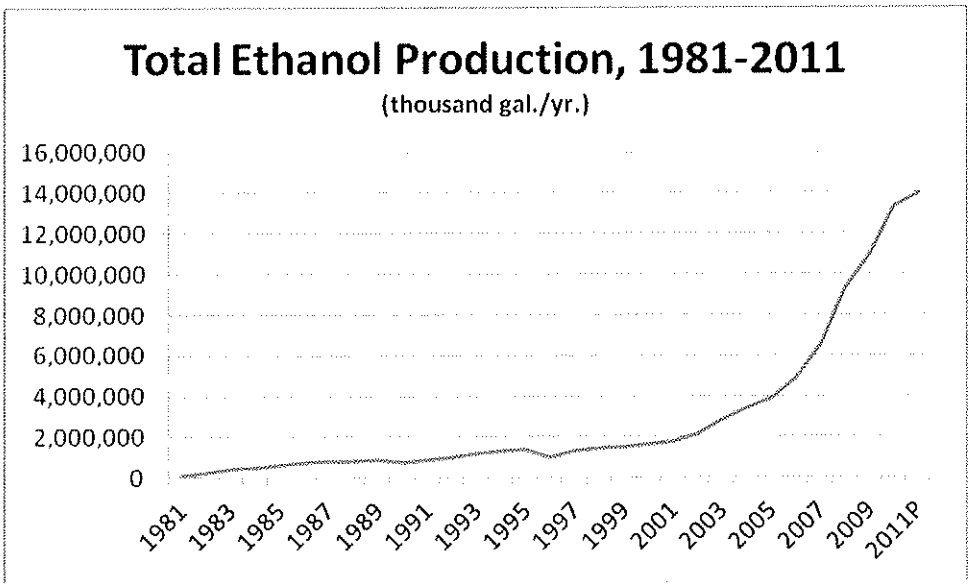
Cellulosic fuels will help diversify the RFS, but even more importantly, they will reduce our country's reliance on fossil fuels while securing a renewable energy future. In 2005, the U.S. was over 60% dependent on foreign oil for our energy needs. Today, that figure is below 50%. Ethanol production in 2012 of 13.3 billion gallons displaced 465 million barrels of oil that otherwise would have had to be imported.[1/] This represents roughly twelve percent of total U.S. crude oil imports and allowed $47 billion to stay in the domestic economy.

Domestic oil import displacement, by year (Source: Cardno ENTRIX)

Renewable fuels have played and will continue to play a large part in helping us to break this dependence on foreign oil. Cellulosic biofuels using technology like INEOS Bio's will help to reduce that figure even further without impacting food supplies and while simultaneously helping communities manage waste. Although cellulosic production levels have not matched expectations over the past few years, once the first few plants are operational, market penetration of cellulosic fuels can happen rather quickly. We are confident of this because it has already happened before with the rapid expansion of first-generation production. The chart below shows that US ethanol production exploded after 2000. While cellulosic levels are but a fraction of what they were envisioned when the law was passed in 2007, given the chance to succeed through policy stability, cellulosic fuels will contribute a sizeable share of the RFS by 2020. This expansion will bring jobs, energy security, and further reduce or dependence on foreign oil.

1/ John M. Urbanchuk, Contribution of the Ethanol Industry to the Economy of the United States, January 13, 2013 (available at *ethanolrfa.org/Cardno-Entrix-Contribution*).





(Source: EIA Annual Energy Review, September 2012, Table 10.3.)

Conclusion

The INEOS Bio technology was first developed over twenty years ago. Over the past decade, companies like ours have taken cellulosic biofuels from concept to lab scale to demonstration scale to commercial scale. 2013 will be the culmination of many years and billions of dollars of research and development. The RFS is helping to drive cellulosic biofuel development to commercial scale and away from food-based feedstocks. Modifying or repealing the RFS would give companies like ours and others concern about our country's lack of commitment to a long-term clean energy economy – one that does not embrace or nurture new advanced biofuels technologies.

We've come far on this journey and it would be disappointing to move backwards.

Sincerely,

Daniel M. Cummings